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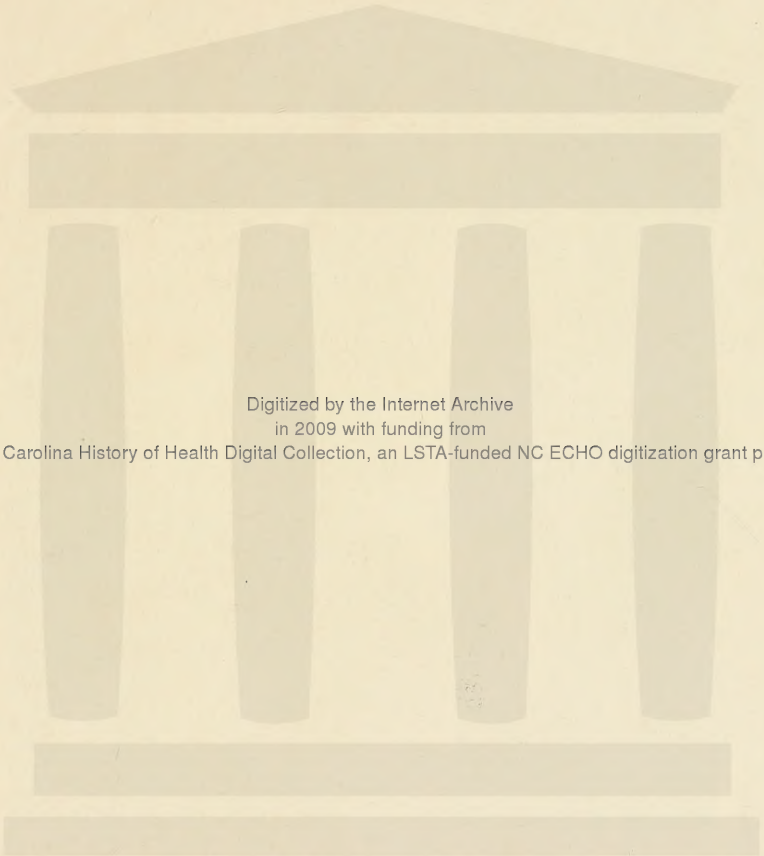

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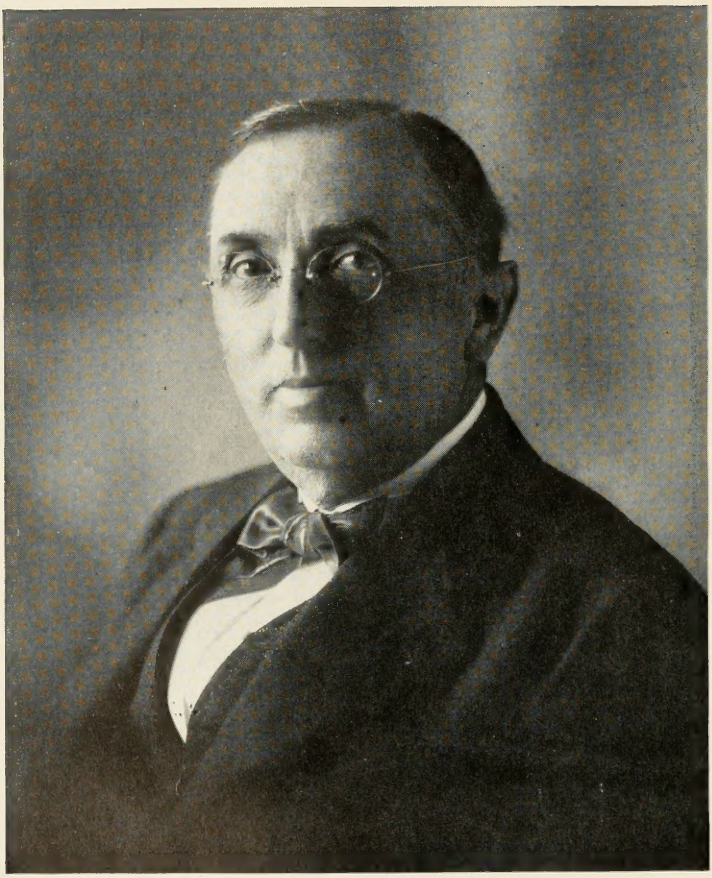

Sincerely Yours
M. H. Fletcher

TRANSACTIONS

OF THE

MEDICAL SOCIETY

OF THE

STATE OF NORTH CAROLINA

SIXTY-THIRD ANNUAL MEETING

HELD AT

DURHAM, NORTH CAROLINA

APRIL 18, 19, 20, 1916

PRESIDENT, DR. M. H. FLETCHER, ASHEVILLE, N. C.
SECRETARY, DR. BENJ. K. HAYS, OXFORD, N. C.

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"It is understood that the society is not to be considered as indorsing all the views and opinions of authors of papers published in the Transactions of the Society."—*Extract from By-Laws, chapter 10, section 8.*

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ROSTER OF OFFICERS OF THE MEDICAL SOCIETY OF THE STATE OF NORTH CAROLINA FROM ORGANIZATION TO 1916.

*Missing Data Not to be Found in Records.

	Date.	Place.	Members in Attendance.	President.	Vice Presidents.	Secretary.	Treasurer.	Members on Roll.*	Honorary Members.*	Honorary Fellows.*
	1849	Raleigh	25	F. J. Hill		W. H. McKee		25		
1	1850	Raleigh	21	Edmund Strudwick	F. J. Haywood, C. E. Johnson, J. W. Williamson, W. G. Thomas.	W. H. McKee	W. G. Hill	38	9	
2	1851	Raleigh	23	Edmund Strudwick	C. E. Johnson	W. H. McKee	W. G. Hill	46	9	
3	1852	Wilmington	38	J. E. Williamson	Thomas N. Cameron, William G. Hill, Johnston B. Jones, N. J. Pittman.	E. B. Haywood	J. J. W. Tucker	72	12	
4	1853	Fayetteville	24	J. E. Williamson	William G. Hill, Johnston B. Jones, J. B. G. Myers, N. J. Pittman.	W. W. Harris	Daniel Dupree	80	14	
5	1854	Raleigh	37	J. H. Dickson	N. J. Pittman, J. B. G. Myers, J. Graham Tull, A. D. McLean.	S. S. Satchwell	Daniel Dupree	84	17	
6	1855	Salisbury	23	J. H. Dickson	J. Graham Tull, Owen Hadley, A. D. McLean, Hugh Kelly.	S. S. Satchwell	J. B. Dunn	96	18	
7	1856	Raleigh	35	C. E. Johnson	Marcellus Whitehead, E. R. Gibson, Johnston B. Jones, O. F. Manson.	S. S. Satchwell	J. B. Dunn	101	22	
8	1857	Edenton	25	C. E. Johnson	Marcellus Whitehead, O. F. Manson, H. W. Faison, E. T. Gibson.	W. G. Thomas	J. B. Dunn	113	16	
9	1858	New Bern	69	W. H. McKee	Edward Warren, C. W. Graham, Caleb Winslow, A. B. Pierce.	W. G. Thomas	J. B. Dunn	172	18	
10	1859	Statesville	81	W. H. McKee	James G. Ramsey, P. E. Hines, J. R. Mercer, W. T. Howard.	W. G. Thomas	C. W. Graham			
11	1860	Washington	64	N. J. Pittman	P. T. Henry, R. H. Winborne, M. Whitehead, T. S. Leach.	W. G. Thomas	C. W. Graham	233	18	
12	1861	Morganton	23	N. J. Pittman	J. J. Summerell, C. T. Murphy, G. W. Hodges, W. A. B. Norcom.	W. G. Thomas	C. W. Graham	244	18	
13	1866	Raleigh	20	J. J. Summerell		W. G. Thomas	C. W. Graham			
14	1867	Tarboro	41	W. G. Thomas	E. Burke Haywood, R. H. Winborne, W. L. Barrow, J. W. Jones.	S. S. Satchwell	C. W. Graham	288	11	
15	1868	Warrenton	27	S. S. Satchwell	Hugh Kelly, George E. Foote, Charles J. O'Hagan, J. H. Baker.	Thomas F. Wood	J. W. Jones			
16	1869	Salisbury	36	E. Burke Haywood	Thomas E. Wilson, A. B. Pierce, C. T. Murphy, M. A. Locke.	Thomas F. Wood	J. W. Jones			
17	1870	Wilmington	38	C. J. O'Hagan	E. A. Anderson, F. N. Lucky, W. R. Sharpe, R. L. Payne.	Thomas F. Wood	J. W. Jones			
18	1871	Raleigh	35	Hugh Kelly	D. N. Patterson, R. C. Pearson, J. B. Seaby, G. L. Kirby.	Thomas F. Wood	J. W. Jones			

ROSTER OF OFFICERS OF THE MEDICAL SOCIETY OF THE STATE OF NORTH CAROLINA—CONTINUED.

*MISSING DATA NOT TO BE FOUND IN RECORDS.

	Date.	Place.	Members in Attendance.	President.	Vice Presidents.	Secretary.	Treasurer.	Members on Roll.*	Honorary Members.*	Honorary Fellows.*
19	1872	New Bern	34	W. G. Hill	H. W. Faison, R. I. Hicks, G. H. Macon, W. A. B. Norcom.	James McKee	J. W. Jones	------	------	------
20	1873	Statesville	43	M. Whitehead	W. T. Ennett, William Little, Charles Duffy, T. P. Jerman.	James McKee	H. T. Bahnson	------	------	------
21	1874	Charlotte	56	W. A. B. Norcom	J. B. Jones, R. F. Lewis, C. G. Cox, J. L. Knight.	James McKee	H. T. Bahnson	------	------	------
22	1875	Wilson	60	J. W. Jones	Walter Debnam, J. A. Gibson, William Little, D. N. Patterson.	James McKee	H. T. Bahnson	148	5	------
23	1876	Fayetteville	33	Peter E. Hines	J. H. Baker, G. G. Smith, T. D. Haigh, J. K. Hall.	James McKee	H. T. Bahnson	157	4	------
24	1877	Salem	42	George A. Foote	J. K. Hall, B. W. Robinson, A. Holmes, A. A. Hill.	James McKee	A. G. Carr	177	4	------
25	1878	Goldsboro	79	R. L. Payne	E. M. Rountree, Richard Anderson, S. B. Flowers, L. A. Smith.	L. J. Picot	A. G. Carr	194	6	------
26	1879	Greensboro	109	Charles Duffy, Jr.	J. A. Gibson, Willis Alston, James McKee, A. A. Hill.	L. J. Picot	A. G. Carr	198	6	------
27	1880	Wilmington	105	J. F. Shaffner	J. K. Hall, W. C. McDuffie, W. R. Wilson, R. F. Lewis.	L. J. Picot	A. G. Carr	225	6	------
28	1881	Asheville	92	R. B. Haywood	J. E. McRee, W. H. Lilly, R. H. Speight, W. J. H. Bellamy.	L. J. Picot	A. G. Carr	254	6	------
29	1882	Concord	65	Thomas F. Wood	T. J. Moore, D. J. Cain, S. E. Evans, John McDonald.	L. J. Picot	A. G. Carr	297	7	------
30	1883	Tarboro	112	J. K. Hall	A. W. Knox, J. M. Hadley, E. S. Foster, John Whitehead.	L. J. Picot	A. G. Carr	310	7	------
31	1884	Raleigh	112	A. B. Pierce	F. W. Potter, G. W. Graham, R. Dillard, G. W. Long.	L. J. Picot	A. G. Carr	348	7	------
32	1885	Durham	173	W. C. McDuffie	James McKee, T. E. Anderson, W. H. Whitehead, A. G. Carr.	W. C. Murphy	R. L. Payne, Jr.	424	6	------
33	1886	New Bern	113	Joseph Graham	H. T. Bahnson, L. J. Picot, J. L. McMillan, W. W. Faison.	J. M. Baker	R. L. Payne, Jr.	438	7	------
34	1887	Charlotte	112	H. T. Bahnson	G. G. Smith, J. L. Nicholson, C. M. Poole, H. B. Ferguson.	J. M. Baker	R. L. Payne, Jr.	452	7	------
35	1888	Fayetteville	133	T. D. Haigh	W. P. Ennett, J. A. Dunn, T. E. Anderson	J. M. Baker	C. M. Poole	306	6	------
36	1889	Elizabeth City	50	W. T. Ennett	W. J. Jones, S. W. Stevenson, G. W. Long	J. M. Baker	C. M. Poole	410	6	------
37	1890	Oxford	160	G. G. Thomas	R. L. Payne, Jr., Richard Dillard, S. W. Booth	J. M. Hays	C. M. Poole	414	6	------
38	1891	Asheville	135	R. H. Lewis	S. W. Battle, J. L. Nicholson, W. H. Lilly	J. M. Hays	C. M. Poole	422	6	------

39	1892	Wilmington	162	W. T. Cheatham	T. S. Burbank, J. W. Long, W. H. H. Cobb, W. D. Hilliard.	J. M. Hays	C. M. Poole	431	6	
40	1893	Raleigh	221	J. W. McNeill	W. G. Galloway, H. H. Harris, J. M. Hadley, Thomas Hill.	R. D. Jewett	M. P. Perry	447	5	3
41	1894	Greensboro	166	W. H. H. Cobb	J. A. Hodge, R. W. Tate, Willis Alston, M. H. Fletcher.	R. D. Jewett	M. P. Perry	454	5	3
42	1895	Goldsboro		J. H. Tucker	J. Howell Way, W. H. Harrell, O. McMullan, C. A. Misenheimer.	R. D. Jewett	M. P. Perry	436	7	3
43	1896	Winston-Salem	158	R. L. Payne	S. D. Booth, J. P. Munroe, J. A. Burroughs, J. E. Grimsley.	R. D. Jewett	M. P. Perry	452	7	3
44	1897	Morehead City	103	P. L. Murphy	J. C. Walton, A. A. Kent, M. R. Adams, B. L. Long.	R. D. Jewett	M. P. Perry	406	6	3
45	1898	Charlotte		Francis Duffy	E. C. Register, A. T. Cotton, J. B. H. Knight, F. H. Russell.	R. D. Jewett	M. P. Perry	437	6	21
46	1899	Asheville	152	L. J. Picot	I. W. Faison, J. W. White, H. H. Dodson, W. C. Brownson.	George W. Pressley	G. T. Sikes	489	6	16
47	1900	Tarboro	115	George W. Long	C. M. Poole, James M. Parrott, T. B. Williams, W. D. Hilliard.	George W. Pressly	G. T. Sikes	482	6	21
48	1901	Durham	186	Julian M. Baker	M. H. Fletcher, C. A. Julian, D. A. Stanton, E. M. Summerell.	George W. Pressly	G. T. Sikes	515	5	18
49	1902	Wilmington	147	Robert S. Young	A. G. Carr, E. D. Dixon-Carroll, I. M. Taylor, J. M. Parrott.	George W. Pressley	G. T. Sikes	546	5	20
50	1903	Hot Springs	155	A. W. Knox	E. G. Moore, C. A. Julian, W. W. McKenzie, J. L. Nicholson.	J. Howell Way	G. T. Sikes	530	6	19
51	1904	Raleigh	326	H. B. Weaver	John Hay Williams, John C. Rodman, S. F. Pfohl.	J. Howell Way	G. T. Sikes	1,033	8	17
52	1905	Greensboro	361	David T. Tayloe	C. A. Julian, John T. Burrus, I. W. Faison	J. Howell Way	G. T. Sikes	1,175	8	17
53	1906	Charlotte	406	Edward C. Register	L. B. McBrayer, W. H. H. Cobb, Jr., W. O. Spencer.	J. Howell Way	G. T. Sikes	1,234	8	16
54	1907	Morehead City	217	Samuel D. Booth	C. M. Strong, J. E. McLoughlin, W. F. Hargrave.	David A. Stanton	H. McKee Tucker	888	7	16
55	1908	Winston-Salem	372	J. Howell Way	J. E. Stokes, J. A. Turner, W. H. Dixon	David A. Stanton	H. McKee Tucker	998	7	28
56	1909	Asheville	337	J. F. Highsmith	C. M. Poole, D. A. Garrison, D. O. Dees	David A. Stanton	H. McKee Tucker	1,067	7	25
57	1910	WrightsvilleB'ch	276	E. J. Wood	John Q. Myers, L. D. Wharton	David A. Stanton	H. D. Walker	1,080	8	35
58	1911	Charlotte	412	C. M. Van Poole	J. V. McGougan, W. E. Warren, L. N. Glenn	David A. Stanton	H. D. Walker	880	8	45
59	1912	Hendersonville	296	A. A. Kent	J. P. Munroe, W. P. Horton, J. G. Murphy	David A. Stanton	H. D. Walker	950	8	44
60	1913	Morehead City	232	J. P. Munroe	F. R. Harris, E. S. Bullock, L. B. Morse	John A. Ferrell	H. D. Walker	1,133	8	40
61	1914	Raleigh	431	J. M. Parrott	E. T. Dickinson, J. T. J. Battle, E. Sevier	John A. Ferrell	H. D. Walker	1,228	8	47
62	1915	Greensboro	443	L. B. McBrayer	J. J. Philips, C. W. Moseley, S. M. Crowell	John A. Ferrell	H. D. Walker	1,221	9	68
63	1916	Durham		M. H. Fletcher	J. L. Nicholson, L. N. Glenn, W. H. Hardison	B. K. Hays	W. M. Jones	1,228	10	79

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William W. McKenzie, Salisbury 1908-1914
Henry H. Dodson, Greensboro 1908-1914
J. L. Nicholson, Richlands 1908-1914

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H. A. ROYSTER, Secretary, Raleigh, Surgery.
*C. T. HARPER, Wilmington, Anatomy, Histology, and Microscopy.

*Deceased.

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J. G. BLOUNT, Washington, Practice of Medicine.
J. Q. MYERS, Charlotte, Pharmacology, Materia Medica, and Therapeutics.
I. M. TAYLOR, Morganton, Chemistry and Diseases of Children.
M. L. STEVENS, Asheville, Physiology, Pathology, and Hygiene.

ROSTER OF MEMBERS NORTH CAROLINA STATE BOARD OF-HEALTH, FROM ORGANIZATION IN 1877 TO 1916.

Name.	Address.	Appointed by	Term.
S. S. Satchwell, M.D., President	Rocky Point	State Society	1877 to 1878
Thomas F. Wood, M.D., Secretary	Wilmington	State Society	1877 to 1878
Joseph Graham, M.D.	Charlotte	State Society	1877 to 1878
Charles Duffy, Jr., M.D.	New Bern	State Society	1877 to 1878
Peter E. Hines, M.D.	Raleigh	State Society	1877 to 1878
George A. Foote, M.D.	Warrenton	State Society	1877 to 1878
S. S. Satchwell, M.D., President	Rocky Point	State Society	1878 to 1884
Thomas F. Wood, M.D., Secretary	Wilmington	State Society	1878 to 1884
Charles J. O'Hagan, M.D., President	Greenville	State Society	1878 to 1882
George A. Foote, M.D.	Warrenton	State Society	1878 to 1882
Marcellus Whitehead, M.D.	Salisbury	State Society	1878 to 1880
R. L. Payne, M.D.	Lexington	State Society	1878 to 1880
H. G. Woodfin, M.D.	Franklin	Gov. Z. B. Vance	1878 to 1880
A. R. Ledeux, Chemist	Chapel Hill	Gov. Z. B. Vance	1878 to 1880
William Cain, Civil Engineer	Charlotte	Gov. Z. B. Vance	1878 to 1880
R. L. Payne, M.D.	Lexington	State Society	1881 to 1887
Marcellus Whitehead, M.D., President	Salisbury	State Society	1881 to 1884
J. M. Lyle, M.D.	Franklin	Gov. T. J. Jarvis	1881 to 1883
William Cain, Civil Engineer	Charlotte	Gov. T. J. Jarvis	1881 to 1883
W. G. Simmons, Chemist	Wake Forest	Gov. T. J. Jarvis	1881 to 1883
J. W. Jones, M.D., President	Wake Forest	State Society	1883 to 1889
John McDonald	Washington	State Society	1883 to 1889
S. H. Lyle, M.D.	Franklin	Gov. T. J. Jarvis	1883 to 1885
W. G. Simmons, Chemist	Wake Forest	Gov. T. J. Jarvis	1883 to 1885
Arthur Winslow, Civil Engineer	Raleigh	Gov. T. J. Jarvis	1883 to 1886
R. H. Lewis, M.D.	Raleigh	State Board of Health	1884 to 1893
Thomas F. Wood, M.D., Secretary	Wilmington	State Society	1885 to 1887
William D. Hillis, M.D.	Asheville	State Society	1885 to 1891
Arthur Winslow, Civil Engineer	Raleigh	Gov. A. M. Scales	1885 to 1891
W. G. Simmons, Chemist	Wake Forest	Gov. A. M. Scales	1885 to 1887
J. H. Tucker, M.D.	Henderson	Gov. A. M. Scales	1885 to 1887
R. H. Lewis, M.D., Secretary	Raleigh	State Society	1887 to 1897
H. T. Bahnson, M.D., President	Winston-Salem	State Society	1887 to 1893
Arthur Winslow, Civil Engineer	Raleigh	Gov. A. M. Scales	1887 to 1888
W. G. Simmons, Chemist	Wake Forest	Gov. A. M. Scales	1887 to 1889
J. H. Tucker, M.D.	Henderson	Gov. A. M. Scales	1887 to 1889
J. L. Ludlow, Civil Engineer	Winston	Gov. A. M. Scales	1888 to 1891
J. H. Tucker, M.D.	Henderson	Gov. D. G. Fowle	1889 to 1891
F. P. Venable, Ph.D., Chemist	Chapel Hill	Gov. D. G. Fowle	1889 to 1891
J. L. Ludlow, Civil Engineer	Winston	Gov. D. G. Fowle	1889 to 1893
J. A. Hodges, M.D.	Fayetteville	State Society	1889 to 1892
J. M. Baker, M.D.	Tarboro	State Society	1889 to 1893
J. H. Tucker, M.D.	Henderson	Gov. T. M. Holt	1891 to 1893
F. P. Venable, Ph.D., Chemist	Chapel Hill	Gov. T. M. Holt	1891 to 1893
J. L. Ludlow, Civil Engineer	Winston	Gov. T. M. Holt	1891 to 1892
Thomas F. Wood, M.D., Secretary*	Wilmington	State Society	1891 to 1897
George G. Thomas, M.D., President	Wilmington	State Board of Health	1892 to 1897
S. Westray Battle, M.D.	Asheville	State Society	1891 to 1895
W. H. Harrell, M.D.	Williamston	State Society	1892 to 1895
John Whitehead, M.D.	Salisbury	State Board of Health	1893 to 1895
W. H. G. Lucas	White Hall	Gov. Elias Carr	1893 to 1895
F. P. Venable, Ph.D., Chemist	Chapel Hill	Gov. Elias Carr	1893 to 1895
John C. Chase, Civil Engineer	Wilmington	Gov. Elias Carr	1893 to 1895
R. H. Lewis, M.D., Secretary	Raleigh	Gov. Elias Carr	1893 to 1895
W. P. Beall, M.D.	Greensboro	Gov. Elias Carr	1894 to 1897
W. J. Lumsden, M.D.	Elizabeth City	Gov. Elias Carr	1895 to 1897
John Whitehead, M.D.	Salisbury	State Society	1895 to 1897
W. H. Harrell, M.D.	Williamston	State Society	1895 to 1897
W. P. Beall, M.D.	Greensboro	Gov. Elias Carr	1895 to 1897
R. H. Lewis, M.D., Secretary	Raleigh	Gov. Elias Carr	1895 to 1897
F. P. Venable, Ph.D., Chemist	Chapel Hill	Gov. Elias Carr	1895 to 1897
John C. Chase, Civil Engineer	Wilmington	Gov. Elias Carr	1895 to 1897
C. J. O'Hagan, M.D.	Greenville	Gov. D. L. Russell	1897 to 1899
John D. Spicer, M.D.	Goldsboro	Gov. D. L. Russell	1897 to 1899
J. L. Nicholson, M.D.	Richlands	Gov. D. L. Russell	1897 to 1899
R. H. Lewis, M.D., Secretary	Raleigh	Gov. D. L. Russell	1897 to 1899
A. W. Shaffer, Sanitary Engineer	Raleigh	Gov. D. L. Russell	1897 to 1899
Charles J. O'Hagan, M.D.	Greenville	Gov. D. L. Russell	1899 to 1901
J. L. Nicholson, M.D.	Richlands	Gov. D. L. Russell	1899 to 1901
Albert Anderson, M. D.	Wilson	Gov. D. L. Russell	1899 to 1901
R. H. Lewis, M.D., Secretary	Raleigh	Gov. D. L. Russell	1899 to 1901
A. W. Shaffer, Civil Engineer	Raleigh	Gov. D. L. Russell	1899 to 1901
George G. Thomas, M.D., President	Wilmington	State Society	1899 to 1901
S. Westray Battle, M.D.	Asheville	State Society	1899 to 1901
H. W. Lewis, M.D.	Jackson	State Society	1899 to 1901

*Died in 1902, leaving a five-year unexpired term, which was filled by the Board.

ROSTER OF MEMBERS—Continued.

Name.	Address.	Appointed by	Term.
H. H. Dodson, M.D.	Milton	State Society	1899 to 1901
R. H. Lewis, M.D., Secretary	Raleigh	Gov. C. B. Aycock	1901 to 1907
W. P. Ivey, M.D.	Lenoir	Gov. C. B. Aycock	1901 to 1907
George G. Thomas, M.D., President	Wilmington	Gov. C. B. Aycock	1901 to 1905
Francis Duffy, M.D.	New Bern	Gov. C. B. Aycock	1901 to 1905
J. L. Ludlow, Civil Engineer	Winston	Gov. C. B. Aycock	1901 to 1905
S. Westray Battle, M.D.	Asheville	State Society	1901 to 1907
H. W. Lewis, M.D.	Northampton	State Society	1901 to 1907
W. H. Whitehead, M.D.	Rocky Mount	State Society	1901 to 1905
J. L. Nicholson, M.D.	Richlands	State Society	1901 to 1905
J. L. Ludlow, Civil Engineer	Winston	Gov. C. B. Aycock	1903 to 1909
J. Howell Way, M.D.	Waynesville	Gov. R. B. Glenn	1905 to 1911
W. O. Spencer, M.D.	Winston	Gov. R. B. Glenn	1905 to 1911
George G. Thomas, M.D., President	Wilmington	State Society	1905 to 1911
Thomas E. Anderson, M.D.	Statesville	State Society	1905 to 1911
R. H. Lewis, M.D.	Raleigh	Gov. R. B. Glenn	1907 to 1913
E. C. Register, M.D.	Charlotte	Gov. R. B. Glenn	1907 to 1913
David T. Tayloe, M.D.	Washington	State Society	1907 to 1913
James A. Burroughs, M.D.*	Asheville	State Society	1907 to 1909
J. E. Ashcraft, M.D.	Monroe	State Board of Health	1909 to 1913
J. L. Ludlow, Civil Engineering	Winston-Salem	Gov. W. W. Kitchin	1909 to 1915
J. Howell Way, M.D., President	Waynesville	Gov. W. W. Kitchin	1911 to 1917
W. O. Spencer, M.D.	Winston-Salem	Gov. W. W. Kitchin	1911 to 1917
Thomas E. Anderson, M.D.	Statesville	State Society	1911 to 1917
Charles J. O'H. Laughinghouse, M.D.	Greenville	State Society	1911 to 1917
Richard H. Lewis, M.D.	Raleigh	Gov. Locke Craig	1913 to 1919
Edw. J. Wood, M.D.	Wilmington	Gov. Locke Craig	1913 to 1919
A. A. Kent, M.D.†	Lenoir	State Society	1913 to 1915
Cyrus Thompson, M.D.	Jacksonville	State Society	1913 to 1919
Fletcher R. Harris, M.D.	Henderson	State Board of Health	1915 to 1919
J. L. Ludlow, Civil Engineer	Winston-Salem	Gov. Locke Craig	1915 to 1921

*Died leaving unexpired term. †Resigned to become member of General Assembly.

STATUS OF SOCIETY MEMBERSHIP BY COUNTIES FOR YEARS 1906–1916.

Counties.	1906	1907	1908	1909	1910	1911	1912	1913	1914	1915	1916
Alamance	15	7	17	15	14	12	11	11	13	9	10
Alexander	--	--	--	--	--	--	--	--	--	--	--
Alleghany	--	--	--	--	--	--	--	--	2	2	
Anson	3	1	3	1	1	1	6	8	7	--	--
Ashe	--	--	--	--	1	--	--	--	--	--	--
Avery	--	--	--	--	--	--	--	--	8	7	9
Beaufort	10	15	15	11	11	16	15	14	14	14	14
Bertie	3	4	4	4	5	2	2	2	3	3	3
Bladen	4	4	3	3	3	4	4	5	7	7	6
Brunswick	4	4	--	4	2	2	2	5	4	5	--
Buncombe	37	47	48	54	58	63	64	69	68	70	71
Burke	8	10	9	10	13	12	11	13	15	17	17
Cabarrus	13	13	17	16	18	21	21	19	22	23	25
Caldwell	8	10	12	12	13	12	10	12	12	11	7
Camden *b*	--	--	--	--	--	--	--	--	--	--	--
Carteret	9	9	10	7	7	6	7	6	7	7	9
Caswell	3	3	3	2	1	1	1	1	1	1	1
Catawba	8	10	9	12	12	--	--	--	--	15	13
Chatham	--	6	1	2	2	6	--	14	15	12	11
Cherokee	3	--	--	9	6	7	9	8	7	10	9
Chowan-Perquimans	--	--	--	--	--	7	5	8	9	7	4
Clay *c*	--	--	--	--	--	--	--	--	--	--	--
Cleveland	12	14	14	13	13	14	15	15	16	13	13
Columbus	8	9	8	8	8	10	12	12	14	9	11
Craven	8	10	14	14	14	12	14	18	15	11	8
Cumberland-Hoke	8	12	12	17	20	20	22	23	22	24	19
Currituck	6	6	3	3	6	4	4	4	6	7	6
Dare *d*	--	--	--	--	--	--	--	--	--	--	--
Davidson	11	12	12	12	13	13	15	13	17	13	9
Davie	3	6	6	6	6	5	6	--	--	--	6
Duplin	5	8	8	10	10	9	8	9	7	4	7
Durham-Orange	16	15	18	24	26	28	31	32	38	40	41
Edgecombe	4	8	8	10	10	11	11	11	13	13	13
Forsyth	20	21	26	30	25	29	31	32	37	39	42
Franklin	8	10	10	9	11	11	11	10	10	12	11
Gaston	17	22	25	25	27	29	29	30	27	26	25
Gates	4	4	4	--	--	--	--	--	--	--	--
Graham	--	--	--	--	--	--	--	--	--	--	--
Granville	7	8	11	12	12	8	13	12	14	11	16
Greene	4	5	5	6	6	6	5	5	5	5	6
Guilford	39	54	62	64	65	56	58	59	62	71	66
Halifax	9	10	10	7	6	2	2	11	11	7	15
Harnett	13	16	18	19	15	14	17	17	16	17	15
Haywood	7	10	11	15	13	10	11	13	15	11	11
Henderson-Polk	10	11	15	14	14	17	17	11	14	14	15
Hertford	8	8	9	8	6	2	--	8	10	4	1
Hyde	--	--	5	8	6	6	6	7	7	--	--
Iredell-Alexander	19	18	18	18	17	12	9	9	14	16	9
Jackson	5	2	2	--	--	--	--	2	3	5	2
Johnston	9	11	15	13	15	19	18	18	19	21	19
Jones	--	--	--	--	--	--	--	--	--	--	--
Lee	--	--	--	--	--	--	--	--	7	8	7	8
Lenoir	11	12	13	9	12	6	8	9	12	14	15
Lincoln	7	8	8	10	10	10	11	12	13	14	11
Macon-Clay	3	3	4	5	--	--	--	--	4	4	5	5
Madison	7	11	11	12	--	--	10	7	8	11	9
Martin	6	9	9	13	13	13	12	13	14	14	15
McDowell	8	7	--	8	4	5	6	6	7	7	7
Mecklenburg	31	37	54	51	57	44	50	63	69	71	74
Mitchell	--	3	4	7	4	5	5	4	2	2	2
Montgomery	5	6	8	7	9	7	7	8	6	10	9
Moore	17	2	14	10	11	21	21	13	16	15	18
Nash	--	--	--	--	--	--	1	--	19	18	26
New Hanover	15	20	21	23	21	21	22	31	28	33	41
Northampton	7	9	9	8	11	9	1	12	12	11	10
Onslow	3	4	4	4	6	11	10	12	10	8	9
Orange *e*	1	1	1	1	1	1	1	8	--	--	--
Pamlico	3	3	4	5	4	4	4	5	5	5	5
Pasquotank-Camden-Dare	11	11	10	10	11	12	12	13	15	15	17
Pender	--	--	--	--	2	2	2	2	--	--	--
Perquimans *f*	--	--	--	--	--	--	--	--	--	--	--
Person	6	7	8	9	9	10	11	11	8	11	13
Pitt	11	11	9	14	10	10	5	9	5	15	9
Polk *g*	--	--	--	--	--	--	--	--	--	--	--
Randolph	6	6	9	9	10	8	9	7	12	14	11
Richmond	11	11	11	1	12	1	10	--	10	13	13
Robeson	16	24	24	20	15	22	23	35	24	16	22
Rockingham	2	5	5	1	16	16	16	18	19	17	10
Rowan	19	27	25	23	24	26	24	23	26	22	25
Rutherford	15	16	17	22	23	24	18	19	20	19	21
Sampson	7	9	11	10	11	11	12	12	14	14	18
Scotland	7	8	11	10	11	9	9	11	12	12	12
Stanly	9	9	9	8	11	10	11	11	13	14	9
Stokes	11	5	10	11	9	10	11	7	12	13	12
Surry	10	13	15	15	15	13	14	19	21	19	18
Swain	6	6	6	8	--	--	--	--	--	--	--
Transylvania	8	4	4	1	--	5	5	6	7	6	7
Tyrrell *h*	--	--	--	--	--	--	--	--	--	--	--
Union	9	14	14	14	14	15	16	17	16	16	12
Vance	6	6	8	9	12	11	11	11	10	11	13
Wake	39	42	44	49	53	56	54	41	53	57	62
Warren	--	--	2	--	--	4	5	5	5	8	7
Washington-Tyrrell	3	4	5	10	11	11	11	11	9	9	11
Watauga	--	--	--	--	--	--	--	--	--	--	--
Wayne	10	10	13	10	--	--	16	19	13	7	17
Wilkes	6	7	8	8	11	11	6	9	8	7	6
Wilson	10	12	12	16	17	17	17	17	24	22	22
Yadkin	9	10	11	8	6	6	6	7	7	6	--
Yancey	2	--	4	3	--	--	--	--	--	--	--
Totals	769	865	979	1012	997	996	1036	1133	1220	1221	1228

a See Iredell; *b* see Pasquotank; *c* see Macon; *d* see Pasquotank; *e* see Durham; *f* see Chowan; *g* see Henderson; *h* see Washington.

HONORARY FELLOWS, MEDICAL SOCIETY OF THE STATE OF NORTH CAROLINA.

Adams, M. R. ..... Statesville
Anderson, T. E. ..... Statesville
Asbury, F. E. ..... Worthville
Attmore, G. S. ..... Stonewall
Bahnson, H. T. ..... Winston-Salem
Baker, J. M. ..... Tarboro
Battle, K. P., Jr. ..... Raleigh
Beall, W. P. ..... Greensboro
Bellamy, W. J. H. ..... Wilmington
Bolton, M. ..... Rich Square
Booth, S. D. ..... Oxford
Bulluck, D. W. ..... Wilmington
Clark, G. L. ..... Clarkton
DeArman, J. McC. ..... Charlotte
Denny, W. L. ..... Pink Hill
Dillard, Richard ..... Edenton
Duffy, Francis ..... New Bern
Edwards, G. C. ..... Hookerton
Faison, I. W. ..... Charlotte
Faison, W. W. ..... Goldsboro
Fletcher, M. H. ..... Asheville
Fox, M. F. ..... Guilford College
Freeman, R. A. ..... Burlington
Galloway, W. C. ..... Wilmington
Hall, Wright ..... Wilmington
Hargrove, R. H. ..... Robersonville
Harris, F. R. ..... Henderson
Harris, I. A. ..... Buncombe
Hicks, W. N. ..... Durham
Hill, L. H. ..... Germantown
Hunter, L. W. ..... Sardis
Irwin, J. R. ..... Charlotte
Johnson, N. M. ..... Durham
Jordan, T. M. ..... Raleigh
Knox, A. W. ..... Raleigh
Lewis, R. H. ..... Raleigh
Long, G. W. ..... Graham
Long, J. W. ..... Greensboro
Love, W. J. ..... Wilmington
McDonald, A. D. ..... Wilmington
McMillan, B. F. ..... Red Springs
McMillan, J. D. ..... Edenton
McMillan, J. L. ..... Red Springs
McMillan, W. D. ..... Wilmington
McNeill, J. W. ..... Fayetteville
Meisenheimer, C. A. ..... Charlotte
Meisenheimer, T. T. ..... Morven

Moore, C. E. ..... Wilson
Nicholson, J. L. ..... Richlands
Noble, R. J. ..... Selma
Nobles, J. E. ..... Greenville
Perry, M. P. ..... Macon
Pharr, T. F. ..... Concord
Pharr, W. W. ..... Charlotte
Picot, L. J. ..... Raleigh
Prince, D. M. ..... Laurinburg
Ritten, F. W. ..... Moyock
Royster, W. I. ..... Raleigh
Schonwald, J. L. ..... Wilmington
Shaffner, T. F. ..... Winston-Salem
Sikes, G. T. ..... Grissom
Smith, R. A. ..... Goldsboro
Speight, R. H. ..... Whitakers
Stevens, J. A. ..... Clinton
Tayloe, D. T. ..... Washington
Taylor, I. M. ..... Morganton
Thomas, G. G. ..... Wilmington
Trantham, H. L. ..... Salisbury
Tull, Henry ..... Kinston
VanPoole, C. M. ..... Salisbury
Ward, W. H. ..... Plymouth
Weaver, H. B. ..... Asheville
Whitaker, R. A. ..... Kinston
Whitehead, John ..... Salisbury
Whitehead, J. W. ..... Salisbury
Whitfield, W. C. ..... Grifton
Whittington, W. P. ..... Asheville
Williams, J. H. ..... Asheville
Wilson, A. R. ..... Greensboro

HONORARY MEMBERS, MEDICAL SOCIETY OF THE STATE OF NORTH CAROLINA.

L. McL. Tiffany ..... Baltimore, Md.
W. W. Keen ..... Philadelphia, Pa.
J. Allison Hodges ..... Richmond, Va.
R. L. Payne ..... Norfolk, Va.
J. N. McCormack ..... Bowling Green, Ky.
R. L. Payne, Jr. ..... Norfolk, Va.
J. L. Ludlow, C.E. ..... Winston-Salem
Paul V. Anderson ..... Richmond, Va.
Stuart McGuire ..... Richmond, Va.
William J. Mayo ..... Rochester, Minn

OFFICERS FOR 1915-1916.

President—Dr. M. H. Fletcher ..... Asheville
First Vice-President—Dr. J. L. Nicholson ..... Richlands
Second Vice-President—Dr. L. N. Glenn ..... Gastonia
Third Vice-President—Dr. M. H. Hardison ..... Creswell
Secretary—Dr. B. K. Hays ..... Oxford
Treasurer—Dr. W. M. Jones ..... Greensboro

COUNCILORS, 1916-1919.

First District—Dr. W. H. Ward ..... Plymouth
Second District—Dr. K. P. B. Bonner ..... Morehead City
Third District—Dr. Ernest S. Bulluck ..... Wilmington
Fourth District—Dr. M. M. Saliba ..... Wilson
Fifth District—Dr. Ben. Hackney ..... Bynum
Sixth District—Dr. A. C. Campbell ..... Raleigh
Seventh District—Dr. J. E. S. Davidson ..... Charlotte
Eighth District—Dr. J. W. Ring ..... Elkin
Ninth District—Dr. M. R. Adams ..... Statesville
Tenth District—Dr. C. V. Reynolds ..... Asheville

For the names of delegates and membership of committees, see pages .. and .., in the minutes of the House of Delegates.

OFFICERS FOR 1916-1917.

President—Dr. Charles O'H. Laughinghouse ..... Greenville
First Vice-President—Dr. D. J. Hill ..... Lexington
Second Vice-President—Dr. J. L. Spruill ..... Columbia
Third Vice-President—Dr. J. H. Shuford ..... Hickory
Secretary—Dr. B. K. Hays ..... Oxford
Treasurer—Dr. W. M. Jones ..... Greensboro

CHAIRMEN OF SECTIONS, ASHEVILLE MEETING, 1917.

Practice of Medicine:
Dr. Edward C. Register, Charlotte.

Surgery:
Dr. Albert Parrott, Kinston.

Anatomy:
Dr. Richard N. Duffy, New Bern.

Pathology and Bacteriology:
Dr. Arthur S. Pendleton, Raleigh.

Physiology and Chemistry:
Dr. R. F. Yarbrough, Louisburg.

Public Health and Education:
Dr. D. C. Absher, Henderson.

Gynecology:
Dr. N. D. Bitting, Durham.

Pediatrics:
Dr. S. Fred Pfohl, Winston-Salem.

Obstetrics:
Dr. M. T. Frizzelle, Ayden.

Materia Medica and Therapeutics:
Dr. T. C. Johnson, Lumberton.

Eye, Ear, Nose, and Throat:
Dr. E. R. Russell, Asheville.

PROGRAM

OPENING SESSION, TUESDAY, APRIL 18, 1916—10 A. M., ACADEMY OF MUSIC.

Call to Order—DR. J. M. MANNING, chairman Committee on Arrangements.
Invocation—DR. E. R. LEYBURN, pastor First Presbyterian Church.
Address of Welcome in Behalf of City—MAYOR B. S. SKINNER, Durham.
Response in Behalf of Society—DR. OSCAR MCMULLEN, Elizabeth City.
President's Annual Address—DR. M. H. FLETCHER, Asheville.
Report of Committee on Arrangements.
Report of Special Committees.
Announcements.

SECTION ON PHYSIOLOGY AND CHEMISTRY.

DR. JOHN B. WATSON, *Chairman*, Raleigh.

Fatigue, a Factor in Degenerative Diseases—DR. W. T. CARSTARPHEN, Wake Forest. Discussion opened by DR. J. L. NICHOLSON, Richlands.

Modern Methods of Chemical Diagnosis—DR. J. R. LOWERY, Raleigh. Discussion opened by DR. CHARLES A. MOSELEY, Greensboro.

SECTION ON ANATOMY.

DR. C. O. ABERNETHY, *Chairman*, Raleigh.

The Anatomical Distribution as an Aid to Diagnosis in Some of the More Common Forms of Skin Diseases—DR. C. O. ABERNETHY, Raleigh. Discussion opened by DR. R. H. LAFFERTY, Charlotte.

The Interpretation of Structure—DR. WILLIAM DEB. MACNIDER, Chapel Hill. Discussion opened by DR. J. L. ADAMS, Asheville.

Abnormality of the Superior Vena Cava Observed in Two Subjects in Dissecting Room—DR. WILBUR C. SMITH, Wake Forest. Discussion opened by DR. A. G. BRENIZER, Charlotte.

TUESDAY AFTERNOON, 2:30 O'CLOCK, ACADEMY OF MUSIC.

SECTION ON PATHOLOGY AND BACTERIOLOGY.

DR. WILLIAM ALLEN, *Chairman*, Charlotte.

Fractional Analysis of the Stomach Juice Throughout the Complete Gastric Cycle—DR. J. K. ROSS. Discussion opened by DR. R. F. LEINBACH.

The Use of Petroff's Medium in the Diagnosis of Tuberculosis—DR. H. P. BARRETT, Charlotte. Discussion opened by DR. L. B. MCBRAYER.

The Protection of the Kidney Against Toxic Agents—DR. WILLIAM DEB. MACNIDER, Chapel Hill. Discussion opened by DR. L. B. NEWELL.

The Insatiate Thirst of the Medical Profession of Today for Human Gore—DR. R. M. REID, Gastonia. Discussion opened by DR. EDMUND BOICE.

TUESDAY EVENING, 10 O'CLOCK.

Smoker by Durham-Orange Medical Society.

TUESDAY AFTERNOON, 2:30 O'CLOCK, COURTHOUSE.

SECTION ON SURGERY.

DR. JOHN WESLEY LONG, *Chairman*, Greensboro.

The Treatment of Acute Appendicitis with Peritonitis—DR. JOHN WESLEY LONG, Greensboro. Discussion opened by DR. W. J. MAYO, Rochester, Minn.

Extra Peritoneal Cæsarian Section—DR. E. T. DICKENSON, Wilson. Discussion opened by DR. J. L. NICHOLSON, Washington.

A Review of a Series of Hysterectomies—DR. NORRIS or DR. BIGGS, Rutherfordton. Discussion opened by DR. E. M. LONG, Oak City.

Vaginal Hysterectomy—DR. W. H. BRADDY, Greensboro. Discussion opened by DR. JOE WHITEHEAD, Rocky Mount.

Dysmenorrhœa—DR. H. F. LONG, Statesville. Discussion opened by DR. J. E. WARD, Robersonville.

Remarks on Distal Effects of Oral and Tonsil Infections—DR. C. W. BANNER, Greensboro. Discussion opened by DR. H. H. BASS, Henderson.

The Diagnostic Value of X-Rays in Surgery—DR. H. H. DODSON, Greensboro.

The Diagnostic Value of Rœntgen Rays in Gastric Cancer—DR. J. W. SQUIRES, Charlotte. Discussion opened by DR. HUGH M. YORK, Williamston.

The Importance of Early Diagnosis and Relief of Intestinal Obstruction—DR. E. B. GLENN, Asheville.

Angio-Myxoma; Myxo-Sarcoma Successfully Removed from the Liver—DR. D. T. TAYLOE, Washington. Discussion opened by DR. W. W. GREEN, Tarboro.

The Significance of Bladder Symptoms in the Diagnosis of Renal Disease—DR. A. J. CROWELL, Charlotte. Discussion opened by DR. H. P. MOSELEY, Farmville.

Bone Grafts into Skull Defects. Demonstration of the Geiger Bone Instruments—DR. ADDISON BRENIZER, Charlotte. Discussion opened by DR. E. B. QUILLEN, Rocky Mount.

A Case of Intestinal Obstruction Due to Meckle's Diverticulum. Report of Case—DR. D. A. GARRISON, Gastonia. Discussion opened by DR. L. W. KORNEGAY, Rocky Mount.

TUESDAY EVENING, 8 O'CLOCK, ACADEMY OF MUSIC.

Some Indications for the Removal of the Spleen—DR. WILLIAM J. MAYO, Rochester, Minn.

WEDNESDAY MORNING, APRIL 19, 1916, 10 O'CLOCK, ACADEMY OF MUSIC.

SECTION ON PRACTICE OF MEDICINE.

DR. PAUL H. RINGER, *Chairman*, Asheville.

An Analysis of Thirty-one Cases of Pulmonary Tuberculosis Treated by the Induction of an Artificial Pneumothorax—DR. PAUL H. RINGER, Asheville. Discussion opened by DR. C. A. JULIAN, Thomasville.

Common Sense and the Fever Thermometer versus the Stethoscope and the Microscope in the Early Diagnosis of Pulmonary Tuberculosis—DR. S. E. THOMPSON (by invitation), Carlsbad, Texas.

A Few Important Facts Noted in Some Recent Epidemiological Studies of Tuberculosis—Dr. L. B. McBrayer, Sanatorium. Discussion opened by Dr. J. Allison Hodges, Richmond, Va.

The Modern Practitioner's Loss of Faith in Drugs: Is it Justified?—Dr. Chas. L. Minor, Asheville. Discussion opened by Dr. Ernest Bulluck, Wilmington.

Dangerous Pathological Conditions Due to Pent-up Focal Infections—Drs. I. W. and Yates W. Faison, Charlotte. Discussion opened by Dr. Arthur Pendleton, Raleigh.

The Artificial Life a Cause of the Increase in Degenerative Diseases—Dr. J. T. J. Battle, Greensboro. Discussion opened by Dr. W. M. Johnson, Winston-Salem.

Some Studies in Public Health with Special Reference to the Rat—Dr. T. B. Bullitt. Discussion opened by Dr. B. W. Page, Lumberton.

Craigiasis: Two Possible Cases—Dr. H. B. Hiatt, High Point. Discussion opened by Dr. William Allan, Charlotte.

Differential Diagnosis of Tuberculosis—Dr. P. P. McCain, Sanatorium.

The Treatment of Morphine Habitues—Dr. W. C. Ashworth, Greensboro.

CONJOINT SESSION.

Wednesday, April 19, 12 O'clock.

Conjoint Session of the Medical Society of the State of North Carolina and the North Carolina State Board of Health.

MEMBERS STATE BOARD OF HEALTH.

Dr. J. Howell Way, *President* ..... Waynesville
Dr. Richard H. Lewis, M.D., LL.D. ..... Raleigh
J. C. Ludlow, C.E. ..... Winston-Salem
Dr. W. O. Spencer ..... Winston-Salem
Dr. Thomas E. Anderson ..... Statesville
Dr. Charles O'H. Laughinghouse ..... Greenville
Dr. Edward J. Wood ..... Wilmington
Dr. F. R. Harris ..... Henderson
Dr. Cyrus Thompson ..... Jacksonville

EXECUTIVE STAFF STATE BOARD OF HEALTH.

W. S. Rankin, M.D. ..... Secretary and Treasurer
C. A. Shore, M.D. ..... Director State Laboratory Hygiene
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J. R. Gordon, M.D. ..... Chief Bureau Vital Statistics
L. B. McBrayer, M.D. ..... Superintendent State Sanatorium
George Cooper, M.D. ..... Chief, Bureau Rural Sanitation
Miss Mary Robinson ..... Bookkeeper

ORDER OF BUSINESS.

1. Report of work accomplished, and recommendations.
2. Discussions.
3. Election of officers.
4. New business.
5. Adjournment.

WEDNESDAY MORNING, APRIL 19, 1916, 10 O'CLOCK, COURTHOUSE.

SECTION ON EYE, EAR, NOSE, AND THROAT.

DR. K. P. BATTLE, JR., *Chairman*, Raleigh.
DR. J. G. MURPHY, *Secretary*, Wilmington.

A Clinical Study of Some Unusual Cataract Cases—DR. JOHN HILL TUCKER, Charlotte. Discussion opened by DR. J. P. MATHESON, Charlotte.

The Remote Systematic Effects of Nasal and Pharangeal Operations—DR. E. REID RUSSELL, Asheville. Discussion opened by DR. W. P. REAVES, Greensboro.

Eye Symptoms Referable to General Diseases—DR. J. M. LILLY, Fayetteville. Discussion opened by DR. R. H. LEWIS, Raleigh.

Submucus Resection of the Nasal Septum—DR. H. W. CARTER, Washington. Discussion opened by DR. J. B. WRIGHT, Raleigh.

Sarcoma of Antrum with Exsection of Both External Carotids. Three Cases—DR. S. E. KOONCE, Wilmington. Discussion opened by DR. J. G. MURPHY, Wilmington.

Some of the Complications and Sequelæ of Tonsil Operations—DR. C. W. BANNER, Greensboro. Discussion opened by DR. R. J. TEAGUE, Durham.

Parasites That Prey Upon the Human Body—DR. THOMAS W. DAVIS, Winston-Salem. Discussion opened by DR. H. W. CARTER, Washington.

WEDNESDAY AFTERNOON, 3 O'CLOCK, ACADEMY OF MUSIC.

DR. E. J. WOOD, *Chairman*, Wilmington.

Recent Studies in Pellagra—DR. E. J. WOOD, Wilmington. Discussion opened by DR. B. W. PAGE, Lumberton.

Newer Methods of Diagnosis in Pediatrics—DR. A. S. ROOT, Raleigh. Discussion opened by DR. J. J. PHILLIPS, Tarboro, and DR. J. S. RHODES, Wilmington.

Caloric Value in Infant Feeding—DR. I. B. SIDBURY, Wilmington. Discussion opened by DR. N. C. DANIEL, Oxford.

SECTION ON OBSTETRICS.

DR. BEN. H. HACKNEY, *Chairman*, Bynum.

The Relation of the General Practitioner to Obstetrics—DR. BEN. H. HACKNEY, Bynum. Discussion opened by DR. J. E. EDWARDS, Siler City, and DR. WILLIAM A. MONROE, Sanford.

Eclampsia, Toxemia and Pernicious Vomiting of Pregnancy—DR. M. T. ADKINS, Durham. Discussion opened by DR. G. H. ROSS, Durham, and DR. J. F. SANDERFORD, Creedmoor.

Pituitrin and Hyoscine in Labor—DR. E. A. ABERNETHY, Chapel Hill. Discussion opened by DR. R. L. PAYNE, Monroe.

Obstetrical Preparedness—DR. B. G. ALLEN, Henderson. Discussion opened by DR. CYRUS THOMPSON, Jacksonville, and DR. H. D. STEWART, Monroe.

Hemi-Embro Posterior—DR. LEWIS H. WEBB, Chapel Hill. Discussion opened by DR. W. T. CARSTARPHEN, Wake Forest.

Some Unusual Abnormalities in Confinement Cases, and Comments on Vital Topics.

WEDNESDAY AFTERNOON, 4 O'CLOCK.

Reception at Watts Hospital.

WEDNESDAY NIGHT, 8 O'CLOCK, CRAVEN MEMORIAL HALL.

Address, *The Newspaper and Public Health*—WADE H. HARRIS, Editor *Charlotte Observer*, Charlotte.
Report of Obituary Committee.

WEDNESDAY NIGHT, 9:30 O'CLOCK.

Reception by Faculty of Trinity College.

THURSDAY MORNING, 9:30 O'CLOCK, ACADEMY OF MUSIC.

SECTION ON MATERIA MEDICA AND THERAPEUTICS.

DR. E. G. MOORE, *Chairman*, Elm City.

Emetine—DR. E. G. MOORE, Elm City. Discussion opened by DR. C. S. SMITH, Scotland Neck.
X-Ray Therapy—DR. E. B. QUILLEN, Rocky Mount. Discussion opened by DR. H. H. DODSON, Greensboro.
Pituitary Extract—DR. K. P. B. BONNER, Morehead City. Discussion opened by DR. T. L. BOOTH, Oxford.
Tetanus Therapy—DR. W. S. JORDAN, Fayetteville. Discussion opened by DR. L. S. BOOKER, Durham.
Therapeutics of the Thyroid—DR. B. C. WILLIS, Rocky Mount. Discussion opened by DR. W. L. TAYLOR, Stovall.
Hemorrhage in Tuberculosis from a Therapeutic Standpoint.—DR. W. S. THOMPSON, Sanatorium. Discussion opened by DR. H. F. GLENN, Gastonia.
Patent Medicines and Other Habit-forming Drugs—DR. S. M. CROWELL, Charlotte.

SECTION ON GYNECOLOGY.

COURTHOUSE, 9:30 A. M.

DR. J. P. MONROE, *Chairman*, Sanford.

Acute Endometritis—DR. L. C. MCINTOSH, Henderson.
Stenosis of the Cervix-Radical Cure—DR. C. M. RAKESTRAW, Asheville.
The Effect of Operations for Uterine Displacements on Subsequent Labors—DR. R. D. MCMILLAN, Red Springs.
Post-Puerperal Sterility: Its Cause and Surgical Treatment—DR. H. S. LOTT, Winston-Salem.
Gynecological Surgery in Neurotic Patients—DR. G. F. DUNCAN, High Point.
Etiological Relation of Some Gynecological Conditions to Chronic Dyspepsia—DR. J. K. PENNER, Winston-Salem.
Syphilis in the Woman, with Report of an Unusual Case—DR. J. L. NICHOLSON, Washington.
Placenta Previa and Treatment by Cæsarian Section—DR. A. C. CAMPBELL, Raleigh.
An Interesting Experience with Pituitrin—DR. ALBERT D. PARROTT, Kinston.
Vicerotopsis—DR. P. R. MCFADYEN, Concord. Discussion opened by DR. E. B. QUILLEN, Rocky Mount.

A Report of Some Cases of Colostorrhea—Dr. B. H. Hackney, Bynum. Discussion opened by Dr. W. H. Furman, Henderson.

Gynecology from a Medical Standpoint—Dr. M. E. Street, Glendon. Discussion opened by Dr. J. W. Halford and Dr. A. L. McLeod.

Gynecology from a Medical Standpoint—Dr. Gilbert McLeod, Carthage. Discussion opened by Dr. J. G. Blount and Dr. A. P. Dickson.

Tracheloplastic Operations and Their Results—Dr. Ernest S. Bulluck, Wilmington. Discussion opened by Dr. J. V. McGougan, Fayetteville.

SECTION OF PUBLIC HEALTH AND EDUCATION.

G. M. Cooper, M.D., *Chairman*, Raleigh.

Arterio-Sclerosis from a Public Health Standpoint—Dr. Charles O'H. Laughinghouse, Greenville.

Specialists and Health Work—Dr. Marvin L. Smoot, Fayetteville.

What Roanoke Rapids Has Done for Public Health—Dr. T. W. M. Long, Roanoke Rapids.

The Relation and Duty of the Physician to His Country in Peace or War—Dr. C. M. VanPoole, Salisbury.

MINUTES

OF THE

STATE MEDICAL SOCIETY

TUESDAY MORNING, APRIL 18, 1916.

Call to order by Dr. J. M. Manning, chairman Committee on Arrangements.

Invocation: Dr. E. R. Leyburn.

Address of welcome: Hon. B. S. Skinner, Mayor of Durham.

Response to address of welcome: Dr. Oscar McMullan, Elizabeth City.

President's annual address: Dr. M. H. Fletcher, Asheville.

President's address referred, on motion, to special committee composed of Dr. Cyrus Thompson and Dr. Picot, for consideration.

Introduction of Dr. William J. Mayo, of Rochester, Minn., by Hon. J. W. Long.

Response to introduction: Dr. W. J. Mayo.

Introduction of Dr. S. E. Thompson, of Carlsbad, Texas, by Dr. L. B. McBrayer.

Response to introduction: Dr. S. E. Thompson.

Section on Physiology and Chemistry.

Papers read:

Modern Methods of Chemical Diagnosis—Dr. J. R. Lowery, Raleigh.

Section on Anatomy.

Dr. C. O. Abernethy in the chair.

Papers read:

The Anatomical Distribution as an Aid to Diagnosis in Some of the More Common Forms of Skin Diseases—Dr. C. O. Abernethy, Raleigh.

The Interpretation of Structure—Dr. William DeB. MacNider, Chapel Hill. (Paper read, but not furnished for publication.)

Abnormality of the Superior Vena Cava Observed in Two Subjects in Dissecting Room—Dr. Wilbur C. Smith, Wake Forest. (Paper read, but not furnished for publication.)

TUESDAY AFTERNOON.

Section on Pathology and Bacteriology.

Dr. William Allan in the chair.

Papers read:

The Protection of the Kidney Against Toxic Agents—Dr. Wm. DeB MacNider, Chapel Hill. (Paper read, but not furnished for publication.)

The Insatiate Thirst of the Medical Profession of Today for Human Gore—Dr. R. M. Reid, Gastonia.

Section on Surgery.

Dr. John Wesley Long in the chair.

Papers read:

The Treatment of Acute Appendicitis with Peritonitis—Dr. John Wesley Long, Greensboro.

Dysmenorrhœa—Dr. H. F. Long, Statesville.

TUESDAY NIGHT.

Section on Surgery.

Papers read:

Some Indications for the Removal of the Spleen—Dr. William J. Mayo, Rochester, Minn.

A Plea for Early Recognition and Relief of Intestinal Obstruction—Dr. Eugene B. Glenn, Asheville.

The Significance of Bladder Symptoms in the Diagnosis of Renal Disease—Dr. A. J. Crowell, Charlotte.

Total Bone Grafts into Skull Defects—Dr. Addison G. Brenizer, Charlotte.

Intestinal Obstruction Due to Meckel's Diverticulum, with Report of a Case—Dr. David A. Garrison, Gastonia.

WEDNESDAY MORNING.

Section on Practice of Medicine.

Dr. Paul H. Ringer in the chair.

Papers read:

An Analysis of Thirty Cases of Pulmonary Tuberculosis Treated by the Induction of an Artificial Pneumothorax—Dr. Paul H. Ringer, Asheville.

Common Sense and the Fever Thermometer versus the Stethoscope and the Microscope in the Early Diagnosis of Pulmonary Tuberculosis—Dr. S. E. Thompson, Carlsbad, Texas.

The Differential Diagnosis of Tuberculosis—Dr. P. P. McCain, Sanatorium.

Section on Eye, Ear, Nose and Throat.

Dr. K. P. Battle, Jr., in the chair.

Papers read:

A Clinical Study of Some Unusual Cataract Cases—Dr. John Hill Tucker, Charlotte.

The Remote Systemic Effects of Nasal and Pharyngeal Operations.—Dr. E. Reid Russell, Asheville.

Submucous Resection of the Nasal Septum—Dr. H. W. Carter, Washington.

Some of the Complications and Sequelæ of Tonsil Operations—Dr. C. W. Banner, Greensboro.

Eye Symptoms Referable to General Diseases—Dr. J. M. Lilly, Fayetteville.

Parasites That Prey Upon the Human Body—Dr. Thomas W. Davis, Winston-Salem.

WEDNESDAY AFTERNOON.

Section on Practice of Medicine.

On the Present Tendency to Nihilism in Drug Therapeutics—Dr. Charles L. Minor, Asheville.

Dangerous Pathological Conditions Due to Pent-up Focal Infections—Drs. I. W. and Yates W. Faison, Charlotte.

The Artificial Life a Cause of the Increase in Degenerative Diseases—Dr. J. T. J. Battle, Greensboro.

Some Studies of the Rat in Relation to Public Health—Dr. T. B. Bullitt, Chapel Hill.

Craigiasis. Two Probable Cases—Dr. H. B. Hiatt, High Point.

The Treatment of Morphine Habitués—Dr. W. C. Ashworth, Greensboro.

WEDNESDAY NIGHT.

Address, *The Newspaper and Public Health*—Wade H. Harris, Editor *Charlotte Observer*, Charlotte.

Report of Obituary Committee.

THURSDAY MORNING.

Section on Pediatrics.

Papers read:

Newer Methods of Diagnosis in Pediatrics—Dr. A. S. Root, Raleigh.

The Caloric Value of Infant Feeding—Dr. J. B. Sidbury, Wilmington.

Section on Obstetrics.

Papers read:

Obstetrical Preparedness—Dr. B. G. Allen, Henderson.

Eclampsia, Toxemia and Pernicious Vomiting of Pregnancy—Dr. M. T. Adkins, Durham.

The Relation of the General Practitioner to Obstetrics—Dr. Ben H. Hackney, Bynum.

Pituitary Extract, Morphine and Hyoscine in Labor—Dr. Eric A. Abernethy, Chapel Hill.

Hemi-Embryo Posterior. Report of a Case—Dr. Louis H. Webb, Chapel Hill.

Section on Matera Medica and Therapeutics.

Papers read:

Emetine—Dr. Edwin G. Moore, Elm City.

Pituitary Extract—Dr. K. P. B. Bonner, Morehead City.

The Importance of Employing Cough to Elicit Latent Rales in Pulmonary Tuberculosis—Dr. S. W. Thompson, Jr., Sanatorium.

Patent and Proprietary Medicines and Other Habit-forming Drugs. A Variety of Comments—Dr. S. M. Crowell, Charlotte.

Treatment of Tetanus, with Report of a Case—Dr. William S. Jordan, Fayetteville.

Section on Gynecology.

Dr. J. P. Monroe in the chair.

Papers read:

The Effect of Operations for Uterine Displacements on Subsequent Labors—Dr. R. D. McMillan, Red Springs.

Post-Puerperal Sterility; Its Cause and Surgical Treatment—Dr. H. S. Lott, Winston-Salem.

Syphilis in the Woman, with Report of an Unusual Case—Dr. J. L. Nicholson, Washington.

A Report of Some Cases of Colosterrhœa—Dr. B. H. Hackney, Bynum.

The Operation of Choice in Prolapse and Retrodisplacement of the Uterus—Dr. J. E. Ashcraft, Monroe.

Tracheloplastic Operations and Their Results—Dr. Ernest S. Bulluck, Wilmington.

Section on Public Health and Education.

Dr. G. M. Cooper in the chair.

Papers read:

Arterio-Sclerosis as it Applies to the Business Man—Dr. Charles O'H. Laughinghouse, Greenville.

Specialists and Health Work—Dr. Marvin L. Smoot, Fayetteville.

Report from the House of Delegates.

Presentation of Dr. C. O'H. Laughinghouse by Dr. M. H. Fletcher.

President C. O'H. Laughinghouse's inaugural address.

Resolution of thanks to Durham.

Resolution in regard to proposed changes in Constitution and By-Laws.

Report of Committee on President's Address.

TRANSACTIONS

OF THE

Sixty-third Annual Meeting of the Medical Society of the State of North Carolina

OPENING SESSION.

TUESDAY MORNING, April 18, 1916.

Dr. J. M. MANNING, chairman Committee on Arrangements: Ladies and Gentlemen, the Sixty-third Annual Meeting of the Medical Society of North Carolina will please come to order. I will ask the Rev. E. R. Leyburn, of the First Presbyterian Church of this city, to ask the blessing upon this audience.

INVOCATION.

DR. E. R. LEYBURN, PASTOR FIRST PRESBYTERIAN CHURCH, DURHAM.

Let us all look to God in prayer.

Oh Lord, our Lord, how excellent is Thy name in all the earth, who hast set thy glory above the heavens. We worship Thee as the great Creator of heaven and earth, the God who has made all things of nothing by the word of Thy power. We rejoice in Thee as the God of providence, who hast made ample provision for all the varied wants of all Thy creatures. Thou openest Thine hand and satisfiest the desire of every living thing. All wait upon Thee, that Thou mayest give them their meat in due season. We rejoice in Thee as the God of redemption, the God and Father of our Lord and Saviour, Jesus Christ, and our God and Father through Him, and we are grateful that we can draw near to Thee as Thy children, assured of Thy love for us, and of Thy readiness to receive our worship and to grant us the blessings which are best for us.

We thank Thee for these bodies which Thou hast given us, so wonderful in their construction, so perfect in their adaptation to all their needs. We thank Thee for our minds, capable of thinking of Thee, and of thinking Thy great thoughts after Thee.

We thank Thee for the increase of knowledge and for the advance of science in the world, and especially do we thank Thee for the increased knowledge of medicine and surgery, and for the progress that has been made in the relief of human suffering and sorrow and need. We thank Thee for our blessed Saviour's example of sympathy and helpfulness for all who suffer and all who sorrow. We rejoice that when He was here upon earth in the flesh, He went about doing good, healing the sick, comforting the sorrowing, cheering the discouraged, giving a larger and more abundant life to all who followed Him.

We thank Thee for all those in our day who are following in the Saviour's footsteps, devoting their lives to the relief of human sorrow and suffering and need. We rejoice that we are living in an age of such advanced medical knowledge and surgical skill, and such improved methods of and such adequate equipment for caring for the sick and suffering, and in the age when the Christian spirit of unselfish devotion to the service of others animates and inspires so many noble men and women.

We thank Thee for this great gathering here of those devoted to Thy service in blessing the lives of their fellowmen, and we pray for Thy rich blessing upon them, and for Thy special guidance in all their deliberations and discussions, and may this Convention result in still greater progress, still better methods, still greater efficiency, and a still nobler zeal in the prevention and cure of disease. We pray that not only in this meeting, but permanently, all these physicians may have the Great Physician continually before them as their model, and beside them as their friend and companion and helper, and may they be animated continually by His spirit and motive, and in their daily rounds may they reproduce, in a measure, the beautiful life of Him who went about doing good. May they ever look to Him for guidance and help, and may they by word and by life ever point those to whom they minister to Him who can give health to the body, peace to the mind, and eternal life to the soul. May we all have the comfort and strength which comes from the consciousness of fellowship with Thee, and may we all, in our several places and relations, seek to do Thy will and carry out Thy plans for us, and thus serving Thee and blessing our fellowmen may we perfectly fulfill our mission in life, and in the end hear Thee saying to us: "Well done, good and faithful servant, enter into the joy of thy Lord." In Jesus' name, Amen.

ADDRESS OF WELCOME.

B. S. Skinner, Mayor of Durham.

Gentlemen of the North Carolina Medical Society:

The City of Durham feels highly honored that this distinguished profession of men has seen fit to select it as the place of meeting in your sixty-third annual convention. We were host to you in 1885, again in 1901, and your coming here today for the third time in the history of this organization, is all the more appreciated. It has fallen to our lot during the past ten months to have had the privilege of entertaining as many as eight conventions, representing various occupations, professions and fraternal organizations, but among them all, there is none to my mind that has more noble purposes and is more honorable (except it be that of the Christian Ministry) than that represented by this assemblage.

This convention is not a narrow gauge of a single neighborhood, but on the other hand, the broad gauge of a great State or Continent. It behooves me to greet you as men of science, as veterans in the grand army of humanitarism, but chiefly I extend greetings to you as lovers of your fellow man. Coming from all sections of our State, the representatives of one of the leading, if not the leading, of learned professions, coming nearer to our hearts and our hearthstones than any, we are glad to have you with us, glad to see your faces, thrice glad to welcome you to our homes.

In these modern days, when all the different classes are organizing for earnest effort, when the trend of things is toward progress and advancement, it is the highest duty of your profession, most of all, that these annual meetings should be held, and it is a high privilege for any community, any people, to have your presence and the benefit of your learning, your counsel and your discussions.

When the light first begins to dawn upon a human being, you are there to usher in its weak and feeble life. When childhood begins to totter and its innocent tongue to prattle, you are with it to direct its footsteps and guide its pathway. When youth puts forth its strength and grasps for yet more vigor, it is the physician that leads the way and points to strength beyond. When manhood and womanhood has pushed behind the frivolities of youth and stands erect, bearing upon its shoulders the responsibilities, the virtues and the beauty of perfected life, it is he that tells how to protect that life, how to adorn it with all the beauty and all the loveliness that perfect health can bestow and make it still

better able to bear her burden and her cares. And when old age, with its withering blight makes feeble our footsteps, it is the doctor who, with gentle hands, makes easy his declining years.

Yea, in life and in death, in health and in weakness, in joy and in affliction, in trouble and sorrow, your profession comes nearest the human family, so near that the law respects its sanctity and veils forever from the public gaze its closest ties and tender associations.

We honor the purposes of your society. The people of the State have the highest regard for your efforts and bless you for the work you have accomplished. Your association has long ago received the praise of popular approval. It has received the sanction and protection of the strong arm of the law, and its effectiveness has been increased time after time by legislative enactment.

There is one tendency of your profession which meets the unqualified approval of all thinking people, and that is towards the *preventive treatment*. It is well expressed in an old adage of our grandmothers, "an ounce of prevention is worth a pound of cure." This leads me to commend in the highest terms the valuable services of the State Board of Health, the various county and local municipal health boards, whose faithful and intelligent efforts are worthy of the support of the State Legislature and the earnest coöperation of all classes of people.

It is to you that the people are indebted for the act passed in 1858 requiring examinations of those who propose to serve as practitioners of medicine in North Carolina. To you justly goes the credit of directing the important sanitary movements so vital to us all, anticipating the inroads of disease and of protecting the weak from the dangers of ignorance and imprudence. The future of sanitary reform has great possibilities of good. Wonderful and great have been the triumphs of the healing art, yet greater will be the day when the world shall know that to prevent disease is grander than to heal it.

Medicine shares the spirit of the times and her banners are set along the lines of progress. Therefore, representing such a profession as you do, you are here to consult among yourselves of the duties, the cares, the advancement and progress made during the past year, and to make yourselves by coming in closer contact with one another, by the exchange of ideas, more able and better prepared to meet the responsibilities that are cast upon you in your sphere of life.

The City of Durham was handed its charter of incorporation in 1869, so in measuring its life accordingly as a municipality, it is only 47 years of age. You were our guests for the first time sixteen years later, when Durham was a mere village, and in 1901 you made us the second visit, and of course we are glad you liked us well enough to come

back the third time to the good old town of Durham. Old in her hospitalities, old in her traditions and memories, and old in all that makes her open-handed and open-hearted, but new in progress, new in advancement, with a new life, new hopes, new aspirations, and a new determination. But we have more than traditions and memories, we have energy, hopes, we have industries, institutions and trade, and we are building more and more for the future.

An old woman's idea of a great man was one "who was careful of his clothes, who could read the scriptures without spelling the words, who didn't drink spirits, and who could eat a cold dinner on a wash day to save the women folks trouble"! Though our idea of hospitality, like hers of a great man, be somewhat primitive, at the same time we want to assure you it is thoroughly genuine.

While you are here we wish your visit to be pleasant and profitable. It will be our pride and our fondest pleasure to point out to you those industries and institutions that the thrift and enterprise and energy of our people have established and that have extended the reputation and name of Durham to wherever the foot of civilized man treads the earth. Your convention will benefit us. When you go away, don't forget that the "latch string" hangs outside in Durham, the city whose name and and fame is reflected in the motto, "Durham Renowned The World Around."

Dr. J. M. Manning: Gentlemen of the society, the response in behalf of the society will be delivered by Dr. Oscar McMullan, of Elizabeth City.

RESPONSE TO ADDRESS OF WELCOME.

Dr. Oscar McMullan.

I am quite sure, Mr. Chairman, Mr. Mayor, Ladies and Gentlemen, that I voice the sentiment of every physician present here today when I tell you that the Medical Society of the State of North Carolina rejoiced when it learned that this, its sixty-third annual meeting, was to be assembled in the progressive, the hospitable, the beautiful city of Durham. We were quite glad, as I say, when we first heard that this meeting was to be convened in your wonderful city, and now, sirs, after the generous, true, eloquent welcome given us by your mayor, in behalf of himself and the good people of this city, a welcome as the Latinist would phrase it "de imo pectore," or in plain English, from the very bottom of the heart, we are doubly glad that our lot has been cast with you upon this annual occasion.

Mr. Chairman, my observation and experience teach me, that under ordinary circumstances, when in good health, vigorous and strong, the average layman has but little consideration or use for the doctor. For some unaccountable reason, he cherishes for him a greater or less degree of aversion, pays but little attention to his advice or teachings, couples him in his mind with those necessary but inevitable evils, death and taxes, and however willing he may be to seek and accept the doctor's services when grim death approaches for an untimely reaping, in health oftentimes there is a propensity to sneer at the doctor and to jeer at his methods. The attitude of the general public towards the physician is aptly expressed by the poet when he says:

> "God and the doctor we alike adore,
> Just on the brink of danger, not before,
> The danger past, both alike are requited,
> God is forgot and the doctor slighted."

Therefore, sirs, when we are the recipients at your hands of a welcome so generous, so kind-hearted, so complimentary, we appreciate more than my faltering tongue can tell your kind words of welcome and commendation, and I assure you they fall into our weary hearts and lives as an eloquence more inspiring, as a music more sweet than ever echoed through Attican temple, or fell from a golden harp. Therefore, it is my pleasure and high privilege, in behalf of the State Medical Society of North Carolina, to tender to you and to your good people, our heartiest thanks and most sincere acknowledgments for all the good things you have said to us and about us, and for the hospitalities and facilities of your charming city.

Mr. Mayor, it would be very hard for you and your lay brethren to understand what this half-rest period, this *quasi*-holiday means to us doctors of North Carolina. It is true, sir, that we are here upon professional business. During our three days stay we will attend to such business as may come before our society; we will read and discuss medical papers; we will follow as best we may the devious windings of some intricate surgical technique as devised and elaborated by our more brilliant members; we will, in imagination, practice our obstetrical art, and guide the young life through that triumphal arch under which every candidate for immortality must pass; yet during that time we will be away from the tale of woe and wail of anguish, from the telephone's ring and the nightly hallo. All other professions and occupations have their time for rest and relaxation. The possessor of the green satchel and crooked tongue, our legal brother, folds up his brief between terms and *rests from his labors;* the clergyman in this day of fashionable invalidism, leaves his flock to an insatiate devil and deserts

his parish for the exhiliration of seaside and mountain top; the laborer watches his lengthening shadow since it speaks to him of that rest which approaching night will bring; and to all these the Sabbath, sweet day of rest, brings to body and mind holy influences and refreshing repose. The faithful physician has no day, no night, no Sabbath, which he can claim, for death, relentless and insatiable, roams the earth at all seasons and plucks his victims at all times.

Therefore, when there comes to us even a partial surcease from our labors, and especially so when that rest comes to us amidst surroundings so delightful and among a people so hospitable and kind as environ us upon this occasion, and welcome us to this charming city—a city brightened and enlivened by the busy marts of trade, and made vocal by the industrial music of the hum and whir of ten thousand wheels and spindles, a city beautified and blessed with magnificent hospitals, made possible by the open hand of a generous citizenry, a city the proud home of grand old Trinity College, my Alma Mater, and the White Mother of hundreds whose illustrious names emblazon the pages of North Carolina's history, as well as the history of other States, in past and present time, founded by the immortal Craven, builded into permanent beauty, power and glory by the inimitable Kilgo, and from whose classic halls there proceeds a light of civic and religious teaching which irradiates and encircles the world,—when I say our "partial surcease" from labor comes to us amidst surroundings so delightful and among a people so kind and inspiring, there needs must well up in each and every one of us a feeling of satisfaction and joy that we are present upon this happy occasion, and I have no doubt that during our stay among you there will be poured over the weary hearts and minds and bodies of us all the chrism of a beautiful and wonderful peace.

Again, Mr. Mayor, in behalf of the Medical Society of the great State of North Carolina, I thank you and your good people for all your words of welcome, for all your hospitality, and for whatever good thing your city may have in store for us. I thank you.

PRESIDENT'S ADDRESS.

DR. M. H. FLETCHER.

I am fully cognizant of the responsibilities, and the importance of the office to which you have promoted me. In a sense I realize my shortcomings and inability to adequately fill it. I do, however, feel honored beyond my deserts and am at a loss for words to express my gratitude.

One is naturally expected as a leader of the profession to talk on some topic of interest to the profession of the whole State, rather than some abstract subject in medicine or surgery. For this reason, health subjects have had the right of way in addresses of this kind for several years. Many of our talks on health matters are getting tiresome and worn threadbare. Much that is printed in our health journals and bulletins is committed to the waste basket. Many of our bulletins are never taken from their cover. The medical profession is ten years ahead of the laity on these subjects, and it remains for the "all time health officers," the young mothers, and the school teachers, to complete the job. Too much time need not be wasted instructing many who are advancing in years, because they are "set in their ways." While we lack interest in sanitation, health matters and their allied interests will be ever before us. We could not get away from them if we would.

I have chosen for my subject one of these interests, viz., The Community Hospital. First, I believe that the name should be right. There is more in a name than we sometimes think. While in reality it is a county hospital about which I am talking, a local name like Wilmington, Greensboro, or Asheville would be preferrable. I would like to get away from such works as State, city, county, charity, mission, and like meaning names, or any name that would suggest that it was sectarian or denominational. We would like to avoid even the suggestion to any sick person, no matter how poor, that he was an object of charity, but that he belonged to the great brotherhood of mankind, and that it was a pleasure for his fellow beings to care for him when he is ill.

This is a hospital age. Someone has well said, "That hospitals have for their purpose the prevention of preventable diseases, the cure of curable diseases, to relieve suffering, and to prolong life."

The hospital idea has gotten such a hold on the public ear, that many of our larger cities have more hospital facilities, and more beds than they have patients to put in them. We recently visited the new five million dollar hospital in Cincinnati, Ohio, which is supposed to be the last word in hospital construction in this country up to this time. Half of its beds were not filled.

When a community of half a million people are willing to tax themselves to the extent of eight hundred thousand dollars a year for the maintenance of an all charity hospital, it proves to my mind that the masses, in the cities at least, are wide awake to the needs and necessities as well as benefits of hospitals. I am reliably informed by one of the leading surgeons of Cincinnati that it costs five and one-half dollars per capita for each patient treated in this modern hospital per day.

Just think what we could do in North Carolina, in some of our

smaller cities and towns, for one-third of this amount per capita cost. If hospitals are so essential to the cities, what about the country and smaller towns? The country folks are just as much in need of modern hospitals as city folks; they are subject to many of the same ills; they are entitled to the same remedies. That is not all. The educated and those who are financially able are going with their ailments and their money to the cities, where they can get the best diagnostic skill and treatment.

How many hundred of our citizens go out of the State each year to get hospital treatment? I doubt if any of you could even approach an estimate. How many more suffer and often die who by reason of poverty and other reasons, can not or will not go, to say nothing of a score who are not physically able to make a long journey without placing their lives in peril.

Many cases go out of the State each year because we have not developed the proper facilities and skill for taking care of them at home, and why? Partly for lack of money, but that is not the only reason. It is mostly for lack of a coöperative spirit among the profession. We do not pull together in matters of this kind as we should. How many of us keep up our laboratory and original research work for want of a proper place to work in? How many of us let our knowledge run to seed? How many lose our talents for want of a proper use?

As much as we deplore it, it is a fact that the family physician is disappearing from the community, and the so-called "Grouping of Physicians" taking his place, and this group centering around an individual, or a private hospital. I think there would be far less danger of commercializing our profession, by having the grouping take place around the "Community Hospital," where every doctor who has developed special skill along special lines, loves certain kinds of work better than he does a dollar, and who does certain kinds of work better than anybody else in his community, should be given an opportunity to further develop his skill.

It would be an incentive to become efficient along many or certain lines, certainly not all, as his work would be subject to review and criticism. It would give the general practitioner an opportunity to take up some line of work, and gradually develop into something besides a clearing house for the specialist and the advertising hospitals. We may mourn the departure of the general practitioner and the community doctor as much as we choose. And right here let me add that I have the greatest admiration and respect for him. Because he is often the biggest and best beloved man in his community, and for the amount of good that he does, the work of the clergy pales into insignificance. He will in a

few years live only in pleasant memories and furnish much for the historian and the novelist to write about.

The modern laboratory, so essential now with its chemistry, bacteriology, physics, pathology, serology, and many other things, have increased to such an extent that it is impossible for even the doctor, with the most comprehensive mind, and a physique of iron, to master all that is required or even essential in the present day. Grouping is a necessity. Why not wake up to the situation and adjust ourselves to new conditions, in such a manner as to hold on to some of the virtues and goodness, and the high ideals that our fathers in medicine possessed? In this day of efficiency, the patient has lost his individuality. Various parts of his anatomy are considered as parts of a machine, to be adjusted by men who are efficient in the various regions. Often the diagnosis is made in the laboratory by men who have never seen him. The doctor has at the same time lost his personality; he does not take a long chance on a guess, hedge in making a diagnosis, or leave a hole to get out. Diagnoses are made by weighing data.

We will not argue the question whether medicine is a science, an art, or a trade. We would like, however, to have a place where we can cure our patients, pursue our studies, develop our skill without devoting our time and thought, and assuming the financial burdens, worries, and responsibilities and often resorting to questionable methods to make ends meet, in conducting a private hospital.

The county societies must take a lead in these matters, or our best talent will leave the State. If we go at this thing in the right way, we will get help in building these institutions from many who are looking for opportunities to benefit mankind; only we must be able to bring about results. Many of the practical ones must be shown. What an idea it is to promote some one thing in a community for which everybody can work alike, without hindrance or regard to race, creed, color, or previous conditions of servitude. Many surgeons and other specialists have been forced to erect private hospitals in North Carolina, in order to have a place where they could treat their patients, when they had no special talent for running the business end of the institution, and have had to give up valuable time to detailed work which has no possible connection with the scientific part of their calling. Physicians are proverbially poor business men, particularly those who devote their thoughts and talents to the highest and best that there is in the practice of medicine. In this age of efficiency, science and business run along different lines.

My own idea of a community hospital is one located in or near a city of five thousand people or more; not less, because you could not get

support for it in the sparsely settled communities. It must take care of all the curable indigent in the county, free, and must be supported in a large measure by county taxation; must have at least forty beds, a training school for nurses, a well equipped laboratory for its own use, as well as to make laboratory tests and examinations for all the doctors in the county. Let all patients who are able, be required to pay for these examinations. Educate the public to pay. Too many people are ready to take advantage of charity. When one begins to accept aid from the county or city, you take out the best there is in him, viz., his pride. Once they accept free treatment, the rest is easy, like accepting doctor's service free—they accept it and get hypercritical pretty soon if they do not get all they want. We are beginning to expect too much from the State, and not enough from ourselves. Protection and paternalism go hand in hand. The person who thinks that the State owes him a living is not the most desirable citizen. He might better say, What can I do for my State?

Let the laboratory be a place where the "All Time Health Officer" can make his tests and examinations, also give instructions to those who are willing to be instructed in these matters. Let the county laboratory be conducted as an auxiliary to the laboratory of "The State Board of Health." You can readily see that it is unwise to wait for reports to come from the State Board of Health in most of these examinations. Besides, the attending physician can follow up his case, can verify his findings, can at least get his report in time to benefit his patient. This part of my theme, I can only make suggestive. An X-ray outfit with a competent man to interpret its findings is a necessity in hospital work at this day, at least for the purpose of making diagnoses. It must be apparent that many of our communities cannot support a hospital. The nearby counties should furnish them with free medical and surgical attention and other hospital advantages at actual cost of maintenance.

The buildings should be of fireproof construction. In fact, in this year of grace 1916, we should not allow any public building to be erected in North Carolina, in cities of five thousand and over, which is not fireproof. Accommodations for contagious diseases for both rich and poor should be provided. The community will fall far short of its mission if it fails to provide for the tuberculosis subject. The brain which conceived the idea of a State sanatorium, at Sanatorium, N. C., was a good one, and should receive our support, but it alone cannot solve the tuberculosis problem in North Carolina. As a matter of fact, when this tuberculosis problem is solved, if indeed it ever is, the State, the county, the city, and the individual will all take part. Manifestly the

tuberculosis problem is different in different localities. Conditions in New Bern and Charlotte could not be the same as conditions in Hendersonville.

I want to refer briefly to the training school for nurses. I do not know of any other class of people who devote their all, their lives, their youth, and energy, to the hospital cause. It is the trained nurse who has made hospitals possible. A training school for nurses is as indispensable as trained physicians. You could not hire, or by any other means, get as efficient service in routine hospital work from graduate nurses as you can from those who are anxious to learn and make a reputation for themselves in training.

Our State Legislature in 1913 enacted a law by which any county in North Carolina could by petition and election issue bonds to build and levy tax to support county hospitals. The law was fairly well thought out and planned. It provides for a non-salaried board of trustees, four men and three women, a training school for nurses. It was to be opened on an equal footing to all legally qualified practitioners of the county. It had other good features. Yet how many of our doctors know that we have such a law, much less how many of our people have thought about it? Can you imagine a bond issue carrying in any county of the State under the present state of the public mind? A campaign of education will have to be carried on first. The doctors themselves will become a large factor in bringing about the results we want. If we ever accomplish anything along this line, we will have to have more of a coöperative spirit than I have ever known among the profession. We will lay aside our differences, prejudices, jealousies, and work together for a common good. If we ever get a county hospital in North Carolina which will serve all classes, under all conditions, the doctors in that particular county will work for it as a unit. They will work only for the good that they can do.

I want at some future time to pay my respects to the private hospital. Many of them are good and are serving a good purpose. Many of them lack a whole lot being a credit to the State which gave them a charter. The State Board of Charities should have more power, or should exercise more power, both in granting and keeping in force the privilege of running these institutions. Some wide-awake body should keep in touch with them all the time. The profession may be able to distinguish between those that are good and those that are off color, but the laity does not always know till after some scandal or crime has been committed. All that is necessary is to have a doctor, no matter much what kind, or whether he has a license or not; "Doctor" as a prefix, sanatorium or sanitarium as a suffix, is all that seems to be nec-

essary. The public does not seem to care, and if the doctors begin to knock them, their success is assured. Many of them seem to be under no kind of restraint, owe no allegiance to any one, and have no regard for morals, ethics, or decent living.

If we undertake to furnish good doctors to practice medicine in the State, why not protect the public from fake institutions?

That time honored institution, the conjoint session of our Society with the State Board of Health, seems to me to have served its purpose and outlived its usefulness. The time fixed by the Legislature to come in the middle of our session with the apparent purpose of forcing a compulsory attendance often ends in failure. One or two hours is too short a time to do the work of the State Board of Health. The report of the secretary is largely made up of statistics which can more profitably be read at home.

It seems to me that the proper place for this joint session is with the Health Officers' Association. Conditions have changed rapidly of late. Too many of our profession have matters of special importance to discuss at our meetings. Health work is now largely in the hands of experts. I recommend that this matter be referred to the legislative committee for adjustment at the next session of the Legislature.

The Boston tea party did not have anything like as much of a grievance against the British as the North Carolina doctors have against our State Legislature for levying a special tax on our profession. The five dollars in itself is not the only cause of our protest. The principle of allowing the State to class us with the trades, the circus, the barber, and tax us accordingly without a protest on our part, is wrong. It is taxing a public charity.

The State exacts much of our time, makes us pay a penalty for not reporting our births, when that information is of no direct benefit to those who make the reports. The public is benefited by this and many other services that we render the State, free. Half of the work of the average doctor during the life of his active service is done without compensation. We pay for the privilege of serving the public for nothing, and no other class of citizens who work for the good they can do are taxed in this way. Let us do as the State of Virginia did—rise up in our might and have this tax removed.

Dr. J. M. Parrott: To my way of thinking, after having heard twenty-two annual addresses, I believe this is about the best, excusing mine, that I have heard.

I move that Dr. Glenn of Asheville, Dr. Cyrus Thompson of Jacksonville, and Dr. Picot of Littleton, be appointed a committee to report this matter.

Dr. M. H. Fletcher: I now declare the sixty-third annual session in session. We have today some visitors who have come a long way to be with us. They are a part of us while they are with us. I am going to ask Dr. Long to introduce Dr. Mayo, whom you know by reputation.

Dr. J. W. Long: Mr. President and fellows of the North Carolina Medical Society: It gives me very great pleasure to introduce to you Dr. William J. Mayo, of Rochester. I shall not take up your time telling you of the many virtues of Dr. Mayo, but I will say in this connection that he has honored us by bringing with him the best part of the family, Mrs. Mayo.

Dr. W. J. Mayo: Mr. President, Members of the North Carolina Medical Society, I wish to assure you that I have appreciated very much the invitation to attend your deliberations and take part in them. I feel somewhat embarrassed to be called out here in front at this particular time, because I think perhaps our hearts are quite as warm in the North, but we have not that gift of eloquence like the examples we have had this morning, and were this a meeting of the Minnesota State Medical Society, we would have a few men get up and in a halting, stumbling sentence, say that which they have to say; and I can only believe that there is something about the climate here in the South that produces men capable of expressing themselves, not only distinctly and well, but have that gift of eloquence which seems to be denied to us in the North.

I thank you again for this opportunity to meet with you.

The President: We have another distinguished visitor who has come from the far away State of Texas. I am going to ask Dr. McBrayer to introduce him.

Dr. L. B. McBrayer: Mr. President, Ladies and Gentlemen: It seems to me that the officers of this society have been very fortunate and very wise in inviting our guests on this occasion. The thing has not been overdone in numbers, in quality they certainly are "going some." And, too, it seems that they have been wise in another way. They have brought to us the distinguished gentleman who has just been introduced to you, than whom, as you know, there is no more able surgeon in this or any other country in the world, who represents a side of the medical profession that has made wonderful developments in the last few years, speaking in terms of Dr. Parrott, and it is well that side of our profession should be represented among our distinguished guests.

There is another side or specialty that has also made rapid strides in the last few years. Perhaps it was a little slower getting started than was the advance in surgery, but rightly has proceeded with more rapid pace in its advancement since the beginning. I refer to that side of our profession known as Prevention, and coming to us from the State of Texas, we have a gentleman who, while engaged in the practice of medicine as medical director of the State Sanatorium for the Treatment of Tuberculosis in Texas, is also imbued with zeal and intelligence and fervor in the cause of the prevention of the spread of this dread disease along all preventive diseases.

Again, I desire to congratulate the officers of this society for the splendid selection of these two distinguished men, and it gives me peculiar pleasure to present to the Medical Society of the State of North Carolina my friend, Dr. S. E. Thompson, of the State of Texas.

Dr. S. E. Thompson: Mr. Chairman, Ladies and Gentlemen: I should be inappreciative indeed if I did not feel grateful for his opportunity of mixing and mingling with this magnificent body of medical men. No less an expert in wisdom than Solomon has said: "He who walketh with wise men shall be wise." Since attending your State health meeting yesterday and listening to your brilliant papers and learned discussions, I feel more than repaid for traveling 1,800 miles that I might be with you on this occasion. It is an honor to attend this most inspiring meeting of North Carolina's learned doctors. And since I was invited with America's most famous surgeon, the honor is signal indeed.

I am glad to see that you are more interested in preventing than you are in treating disease. I am profoundly impressed with the advancement you are making along these lines. I can see that your labors are earnest and that your purpose is sure. I shall return to my home with a broader and bigger vision, having met and known you.

Dr. M. H. Fletcher: We will be glad to welcome any other visitors if any doctors will introduce the gentlemen.

Before we take up a paper I want to call your attention to one fact, which is that the papers are going to be limited. They are limited by our constitution to twenty minutes. When a man responds to a discussion, he has an opportunity of five minutes response, and if a man cannot say what he has to say in twenty-five minutes, he had better put it off until next year.

Dr. M. H. Fletcher: We have reports of special committees. If the society has no objection, I desire to have Dr. MacNider make an announcement.

Dr. Wm. DeB. MacNider: At Chapel Hill, Mr. President, we do not wish to detract from the good times you are going to have in Durham, but if during the good times you can run over and look over the University, which is especially beautiful at this time of the year, and see our new medical building, in which we are proud to teach, we would be glad to have you come, especially in the afternoon, when we can meet you and see that you have in part a good time.

Dr. M. H. Fletcher: I will make one other announcement. Under the head of the sections, we expect the chairman of those sections to come up and preside.

SCIENTIFIC PAPERS

SECTION ON PHYSIOLOGY AND CHEMISTRY.

SECTION ON ANATOMY.

SECTION ON PATHOLOGY AND BACTERIOLOGY.

SECTION ON SURGERY.

SECTION ON PRACTICE OF MEDICINE.

SECTION ON EYE, EAR, NOSE AND THROAT.

SECTION OF PEDIATRICS.

SECTION ON OBSTETRICS.

SECTION ON MATERIA MEDICA AND THERAPEUTICS.

SECTION ON GYNECOLOGY.

SECTION ON PUBLIC HEALTH AND EDUCATION.

PHYSIOLOGY AND CHEMISTRY

CHEMISTRY IN MODERN DIAGNOSIS.

Dr. J. R. Lowery, Raleigh.

Within the last fifty years medicine and surgery have made greater progress than they made in the history of the world before this time. Surgery was the first to take the forward step, but within the past dozen years medicine has advnced more rapidly than surgery. And I think that within the next few years, with our increased knowledge of preventive medicne, it will push its way in front of surgery. In former years the physician was compelled to make his diagnosis by the information received from questioning the patient, by the various sounds of the heart and lungs that were heard by the unaided ear, and the many abnormal conditions found by the touch of the bare hand. But today we are greatly aided in our diagnosis by means of the various apparatus and laboratory tests that have been introduced into the medical world in the last few years. With the introduction of the stethoscope we are more able to detect the fine râles of the lungs and the minute murmurs of the heart.

With the coming of the microscope, which revolutionized medicine, we are enabled to see micro-organisms that can only be seen when magnified many times, and in numerous instances many hundred times. It has only been a short time since the chemistry that was taught in our medical schools was considered a joke. When the medical student emerged from the medical college with his diploma under his arm he left what little chemistry he had learned behind; he only studied it in order to pass his examinations. I remember well when I was a medical student one of the boys that had failed on chemistry asked the professor what was the use of studying chemistry anyway, as we did not use it in practice. He replied that no one could be a good physician unless he knew chemistry, and every one in the class laughed at his remark. But the physician today who does not make, or have made, chemical tests of the secretions and excretions of the various organs of the body will soon find his practice growing less and less from year to year, for the more progressive man is sure to take his place. If Wassermann had not been a chemist his name would not be familiar to every physician in the world today; but his knowledge of chemistry enabled him to work out and contribute to the medical profession his tests for syphilis, which

has been the greatest aid to the diagnostician that the medical world has ever known. If Ehrlich has not been a master of chemistry he would not have been able to combine drugs and form a new substance (Salvarsan) which enables one to get quicker relief from the most horrible disease the human body has ever suffered.

It has been only a short time since we thought the kidneys were sound when there was no albumen found in the urine; and when we found albumen it was considered a case of nephritis; but today we have many tests that will show a diminished function of the kidneys long before we can find albumen. Of these the phenolsulphonaphthalein is most universally used. It is harmless, simple, accurate, and easy. It has proved of inestimable value not only in determining the total activity, but also in estimating the relative power of the two kidneys. I know of one insurance company that will not accept an applicant however good his physical examination may show up unless his urine will show as much as one and three-quarters of urea. Take the while stool that we once thought was due to lack of bile in the intestinal tract; now we know this is due to too much fat in the feces as a result of one of the four following causes: lack of sufficient amount of bile in the digestive tract, more fat than can be digested by the patient, absence of trypsen in the stool, or a catarrhal condition of the intestines, preventing the normal amount of fat being absorbed. By means of chemical tests we are able to work out the exact cause and treat the patient scientifically.

Take the stomach. We cannot only tell what kind of acid we have, but we can tell how much of each kind there is in the gastric juice. And again, when we find a diminished amount, or a total lack of free hydrochloric acid, we can tell by testing the rennin whether this is due to an inflammation of the mucus membrane of the stomach or to a nervous condition. For instance, we may have a gastric juice with a total acidity of 28 and free hydrochloric acid may be 5 or none at all. We then test for rennin, and if we find it normal we know it is a nervous condition, as the nerves will not affect the secretion of the rennin, but it does the acid. Now again, if we should find the rennin much diminished we know that there is gastritis.

These various tests of the excretions and secretions of the body, if accurately made and properly interpreted, are very valuable in helping to make the diagnosis; but if carelessly made they are not only useless, but misleading and harmful.

Now in preparing this short paper, I have not made an attempt to say anything about how to make any test, as you can find them in any book on clinical diagnosis much better than I can describe them, but I consented to read this paper in the hope that I may be able to show

some of you the importance of chemistry in medicine, that these few words may act as a stimulus to you all, that you may build the bridge connecting chemistry with medicine that we may be more able to arrive at the correct diagnoses of disease of man.

DISCUSSION.

Dr. J. P. Munroe, Charlotte: Mr. President, I do not know that there is much more that could be said on this subject, unless it is to emphasize what the doctor has so well said: that a man who practices medicine today and does it intelligently must necessarily have the aid of the laboratory for tests if he is going to do himself justice. It is true, some of them are inclined to rely on the laboratory a little too much; at the same time I think the majority are just a little the other way. A man will after a while feel that he simply cannot practice at all until he has had a report from the laboratory. A few years ago chemistry was regarded as one of the necessary evils, as some doctor has remarked, and the less he knew about it the better doctor a man sometimes thought he was. But that day is past and no man today could practice medicine intelligently without a laboratory; and if he is not able to avail himself of one he ought to hire somebody that is.

Dr. W. L. Dunn, Asheville: I am sorry that the doctor in this paper which is intended to emphasize the importance of the chemic side of the laboratory in its relation to the practice of medicine and surgery has not given us any specific point to arouse discussion which might give further emphasis to his contention. It is unfortunately true that in recent years the chemic side of the laboratory has been very largely overshadowed by the biologic side. Dr. Munroe has already so well emphasized the importance of the laboratory in its relation to the practice of medicine and surgery that little is left to be said.

Dr. A. J. Crowell, Charlotte: There is one thing the doctor has not mentioned which I think is well worth calling to the attention of the Society. I think the test means much more than the settlement of the urea in the urine. The retention, the urea retention, is estimated by the blood examples as far superior, help us much more as to what the kidney is doing than the elimination in the urine. We are all aware of the fact that the amount of urea in the urine is dependent on the food we eat. The doctor did not mention that. We think it is very important.

Dr. Lowery: I will agree with Dr. Crowell that the estimation of the urea in the blood gives us more information than the estimation of

the urea in the urine, but it is more difficult to make, and I only used the urea test as an example to show the importance the insurance company puts upon chemical examinations. I will also agree with Dr. Munroe that we should not rely entirely upon the laboratory test in making our diagnosis, but we should use it by all means as an aid to our other findings in arriving at a correct diagnosis.

ANATOMY

THE ANATOMICAL DISTRIBUTION AS AN AID TO DIAGNOSIS IN SOME OF THE MORE COMMON FORMS OF SKIN DISEASES.

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In the diagnosis of skin diseases there are many cases in which the anatomical distribution of the lesions aids materially in the differentiation. In this short paper I will not attempt to go very fully into the subject, but select a few of the most outstanding examples at random.

Scabies is probably the most common skin disease that can easily be diagnosed in most cases by the anatomical distribution of the eruption. It occurs on the thin surfaces of the skin, usually on the back of the hands between the finger-webs of the fingers, anterior surface of the wrists, bends of elbows, arm pits, over pubic regions, in groins, on penis in the male and vulva in female, between anterior surface of thighs, between buttocks, and in popliteal spaces. Scabies never occurs on the face, except occasionally in nursing infants. Of course, the diagnostic point is the burrow, which is a slightly elevated line of little black dots about one-sixteenth of an inch in length. Scabies itches worse at night.

Pediculosis Corporis. While this is not such a common eruption in this section of the country, it shows a very definite anatomical distribution. It occurs on extensor surface of arms and shoulders and on the back from buttocks up to the neck. Characterized by parallel scratch marks and punctuate hemorrhages on back and finding of pediculous in the clothing.

Pediculosis Pubis is a rather common condition, and its usual occurrence is the pubic region; but do not let us overlook the fact that the pediculosis pubis will attack any hair on the body except the hair of the scalp, while the pediculosis capitis only attacks the hairs of the scalp and the pediculosis corporis lives in the clothes and is not attached to any hairs. You can see how these facts would affect the treatment.

Eczema Seborrheicum. While in eczema, as the term is ordinarily used, there is found no special distribution, it occurring anywhere on the surface of the body with the patches fading off into the sound skin. In eczema seborrheicum the anatomical distribution is very pronounced.

The latter occurs on scalp, eyebrows, over sternum, middle of back, in axilla, bend of elbows, in groins, in popliteal space, and has a sharply defined margin which does not fade off into the sound skin, and is covered by a greasy yellow crust.

Herpes occurs most anywhere on the body, but is named for its location. For instance, Herpes Progenitalis, Herpes Zoster. The latter demands some attention because it follows the distribution of the superficial cutaneous nerves and is at times very painful.

Erythema Multiforme is of some interest because the eruption usually appears on the dorsal surface of hands and forearms, the tibial aspect of legs, and the face or neck, and usually of a symmetrical distribution.

Impetigo Contagiosa usually attacks the scalp, face and hands in early life, while in the male adult the bearded region is frequently involved. The diagnosis is usually easily made by the distribution and the yellow crust which is stuck on in the middle and free at the edges.

Tinea Sycosis, or ringworm of the beard, is often confounded with *sycosis vulgaris.* They both affect the bearded region. The latter appears on the face as little pustules, each pierced by a hair; the infection may be caused by any pus-producing micro-organism, and both the mustache and the bearded region may be involved. The former occurs as nodules resembling boils and carbuncles; the mustache area is rarely involved, and the cause of the infection is the ringworm fungus. There is no hair loss in the early stages of sycosis vulgaris, while in tinea sycosis the hair falls out and is easily extracted from around the edges of the affected area.

Alopecia Areata often has to be differentiated from *tinea tonsurans,* or ringworm of the scalp. Very little difficulty is usually experienced if one remembers that the latter has prominent hair follicles with a goose-flesh appearance, broken-off hairs, whitened scaly surface, and the hairs in the affected part pull out easily. The affected area in the alopecia spot is smooth with no elevation of the follicles, with no hair in the spot.

Lichen Planus is a rare condition, but of interest because of the violaceous papules slightly elevated and flattened and covered with fine glistening scales and occurs most frequently on the flexure surfaces of the wrists, the forearms, the ankles, and the lower legs.

Pityriasis Rosea. From three to ten days before the eruption one large patch appears on the trunk, usually on the latter portion. It is annular, of a pinkish to a pink-red color, and has a fawn-colored, slightly scaly center. The remainder of the outbreak occurs more or less simultaneously, all the lesions occurring in about three days. They occur as

small salmon-colored plaques with a fawn-shaded center. They are usually about the size of a quarter or a dime and extremely superficial. The outbreak is nearly always strictly limited to the trunk or to trunk and upper portion of extremity.

Psoriasis. While it may be of general distribution, the portions of the body most often affected are the extensor surfaces, such as elbows, knees, extensor surfaces of legs and the arms, and scalp.

There are many more skin diseases which might be of interest, but most of them show no very decided distribution as an aid to diagnosis.

President M. H. Fletcher: Gentlemen, don't be timid. We want to discuss these papers. The most important part of any of these subjects is the discussion, though I would not detract from the papers.

PATHOLOGY AND BACTERIOLOGY

THE INSATIATE THIRST OF THE MEDICAL PROFESSION OF TODAY FOR HUMAN GORE.

Dr. R. M. Reid, Gastonia, N. C.

Since the beginning of time when Cain, the firstborn of the first created pair, was branded by his Creator for shedding his brother's blood, since the time when the infamous Herod thirsted for the blood of the Babe of Bethlehem, since the time when the avaricious Shylock demanded his pound of flesh and only desisted because no blood could be shed, since the time when the incarnate demon Nero caused the streets of Rome to run red with blood and fire and in his demoniacal ecstacy played a weird accompaniment on his violin to the holocaust of blood and carnage—to sum up, since the time, as Blackstone wrote, when the memory of man runneth not to the contrary to this present day, man's insatiate thirst for the blood of his fellow mortals has ever been conspicuously apparent. But today this thirst has attained a momentum incomparably greater than all other human desires or passions, as the blood-bespattered fields and crimson-colored rivers of all Europe today will bear appalling and ghastly testimony. But it is not of these unlearned, unlicensed and unprofessional people and nations, who shed blood, pleading neither pseudo-science nor mock philanthropy, but delude themselves by the perverted plea of patriotism, individualism, and fanaticism for their premonitory aura is a voice from heaven saying: "God is with us, for we shed the blood of innocent men, women and children to protect our Fatherland, preserve our own lives and extend our culture, creed, and country," but it is to the ever-increasing army of medical men, self-styled specialists in surgery, who live, move and have their unfortunate being in this peaceful Christian land, and who, I am sorry to say, are "bone of our bone and flesh of our flesh" whose insatiate thirst for the gore of men, women and children, inlaid with gold and silver, is so unmistakably conspicuous, that I beg permission to call your attention today.

This granted, I desire to present for your prayerful consideration a few of the noble deeds and many of the ignoble misdeeds of a very considerable number (the exact number unobtainable by reason of the appalling increase since last census) of our modern surgeons, or perhaps

more appropriately stated, our surgeons of this modern era, as observed by a common country doctor during his quarter century observation.

Just here let me state in beginning our discussion of such a numerically momentous subject as the present-day surgeons that to be logical and just in the discussion of every scientific proposition or even public calamity, we must follow the universal law of reason by establishing a common, accepted hypothesis as a basis from which to deduct conclusions or make comparisons. This admitted, we proceed to establish the following hypothesis, namely, That there was a delectable time, as we learn from medical history, both traditional and written, before the war, the Civil War, from which we Southern rebels always reckon chronology, when a medical man, to be considered a surgeon, must of necessity possess the following acquired or accredited distinguishing qualifications, namely:

First. Literary and professional education and attainments.

Second. Scholarly personal appearance.

Third. Habitual diagnostic ability.

Fourth. Awe-inspiring reserve.

Fifth. Apparent skillful daring.

Sixth. Disgust for ensnaring avarice.

Seventh. Scrupulous professional ethics so indelibly stamped on his daily walk and conversation that a wayfaring man, though a fool, could not err as to the profession that he typified.

But, alas! the above was antebellum, and the rapid flight of swift-winged Time has wrought mysterious changes and frequently unwonted havoc in the ranks of the surgical profession since, as we shall attempt to show by the following charitable comparison.

The surgeon of today—and his name is legion—found in every cross-road village, hamlet, city and country of our beloved America where the foot of man has trod, is a man, or will be a man if perchance he should live to reach maturity, which God forbid, whose literary and professional education and attainments were pulled before they were ripe, or, as some would unkindly express it, daguerreotype surgeons of the "made while you wait" variety, whose pompous, patronizing personal appearance is so suggestive of the confidence man as to cause a stranger to hold his hand on his pocket in his presence; whose diagnostic acumen is so acute as to enable him to make a differential blood count with a pair of opera glasses, or tell accurately the tension of the pulse and purse with kid-gloved hands and verbose diarrhœa; whose reserve is so inspiring as to compel him to exploit his accidental surgical successes on every street corner where two or more laymen or press reporters are gathered; whose daring is so skillful that he will amputate at the waist

for trifacial neuralgia, and do it successfully; whose cultivated avarice is so absorbing as to persuade him to remove his friend's or kinsmen's appendix and entire bank account at one and the same sitting, and whose professional ethics are so flexible that he will conscientiously solicit the family doctor's surgical cases one day and treat ileocolitis in the same family the day following, or his ethics are so sincerely exalted that he appears (of course, it is not real) to regard all family doctors as a sort of automatic intake valve attached to the Ford steering wheel of his reputation, socially, professionally, and financially—a kind of Jeff and Mutt combination, deplorably Jeff. Again, his professional ethics are so highly sensitized that they seem to have produced hyper-æsthesia of the cochlear root of his auditory nerve, which enable him to hear distinctly many sounds wholly inaudible to the normal ear, for he can hear the profitable rattle of the city ambulance on a noisy street five blocks distant, and meet it, grip in hand, ready to operate before the family doctor could even hear its approach; or he can hear the station blow of an incoming locomotive carrying a sick or injured passenger, and differentiate it from similar whistles on other trains, although two miles from the station. In fact, many family doctors have told me, in graveyard confidence, of course, that he works his professional ethics overtime, for his ethics, they say, seem to increase his profitable religious proclivities ten, sixty, or a hundredfold, for he will officiate and affiliate with any religious organization, denomination or sect that he deems most advantageous to the cause, and preach surgical purity, and plenty of it, in season and out of season, six days in the week, and on Sunday preach it again; or he will, they say, insist on splitting the operative fees in the family doctor's surgical cases, offering them 2 per cent net, emphatically stating, though in the strictest confidence, that it is only his high professional esteem and personal regard for them that he is so unusually liberal in his donations to them.

Apropos of the above, in the language of Theodore Roosevelt, ex-Rough Rider, ex-President of the United States, and ex-President and founder of the Ananias Club of America, "I now throw my professional hat in the ring" and here and now challenge any and all present to disprove this broad and comprehensive proposition. Hear me, brethren! That any common family doctor who has as his professional competitor one of these self-made, or half-made, ego-maniacal and bloodthirsty present-day surgeons stands about the same chance of professional or financial success that a celluloid tom-cat would stand of becoming a paternal grandfather in the superheated flames of Dante's Inferno.

Now, my muchly beloved surgical brethren, I sincerely trust that you will not misunderstand the kindly spirit in which these things are said.

Far be it from me to say, or even intimate, anything unkind, caustic, or derogatory of our American surgeons. If I could force myself to lay aside, even for a moment, the uncompromising fraternal admiration I feel toward them I am absolutely sure I could say some unChristian-like and ridiculous things about their surgical attainments, or entertainments, but, in the words of Huckleberry Finn, "I hope I may drop dead and rot in my tracks" if I should be so unprofessional as to even entertain such thoughts, much less drag in the dust the fraternal ethics that they themselves ostensibly worship with such idolatrous zeal. But even after the above statement I still fear that what I have already said, or may yet say, may innocently and unintentionally convey the impression to some of the more hypersensitive or combative among you that I have not the fraternal love that I profess, or at least am not an enthusiastic champion of your cause, hence I hasten to say most emphatically, on my word as a gentleman and country doctor and cross my heart and body, that by no means to my certain knowledge do all surgeons look only on the financial side of every operation, even if you have never seen one refuse to remove an appendix because it was walled off by a sack of gold or firmly adherent to a certified check. Again, I have heard of many of them who are entirely reasonable in their operative fees, for they will do an appendectomy for the moderate sum of three dollars down and an unendorsed note for two dollars balance payable in the fall. Again I have heard of others more reasonable still, for they are so magnanimously philanthropic that they will enter into a *bona fide* contract to cut out both ovaries of a beautiful virgin of eighteen summers to relieve her occasional dysmenorrhœa, or do a hip-joint cut-off to heal a varicose ulcer of the leg, or carve up a Cæsarean section through fear that a carbuncle on the meatus urinarus of the mother would retard the normal progress of her labor—all free of cost, hospital fees and transportation home included. I use the unprofessional terms "cut-off," "cut out" and "carve up" in these cases not with the intention, as you may at first suppose, of being ridiculous or sarcastic, but from the eternal fitness of things, for had I used the surgical terms "double ovariotomy," "bloodless hip-joint amputation," or "Poro-Cæsarean section," considering the judgment and technique used in these cases, they would sound about as awkward and discordant as a previously vigorous man who had undergone a vassectomy operation would feel in the Sultan's voluptuous harem.

You dare not tell me, after the above, that all surgeons care only for filthy lucre. I resent the cruel imputation and defiantly tell you that it is far too often their insatiate thirst for gore that goads them on to unprofitable deeds of reckless daring. Neither would I dare tell you that

all surgeons manifest this prodigal philanthropy, for I have been reliably informed there are many who show slightly exaggerated avaricious reflexes that respond readily to monetary stimuli, both Galvanic and Faradic, and who, to appease their avaricious desires, will garrulously explain to their prospective patient that his Meckle's Diverticulum (they dare not say appendix, because too common) has suffered a slight traumatism, and on account of its anatomical relations being in such intimate contact with his lesser omentum anteriorly and ileum posteriorly, the plastic exudate thrown out by it has produced pathological fibrinous adhesions, resulting in partial or complete occlusion of his ileum, and thereby arresting intestinal peristalsis and causing stasis of the mesenteric circulation. We are told at this psychological moment, when the surgeon sees the pallor of impending dissolution settling on his patient's Hippocratic face, overcome by this diabolical picture, the surgeon proceeds forthwith to administer the knockout drops by telling his patient that he is carrying within his belly at that moment a condition many times more explosive than dynamite, which is liable to blow up at any moment, and almost certainly will within the next three days unless he is operated on. Not content with this, the surgeon further tells him that if this explosion does occur the most violent volcanic eruption of Mount Vesuvius would be but as a single false note by a paid church choir in comparison with his internal combustion. They tell us by this time the patient's face is blanched with terror. His eyes see indescribable visions of untold suffering. His ears ring with the wails of those who refused operation and are now in torment, and sulphurous odors begin to penetrate his dilated nostrils. In this hypnotic state he pleadingly and pathetically begs the surgeon to do any operation on him that he can do best and quickest. Just here this thought occurs to me, as perhaps it has to you at some previous time, that to the American surgeon rightly belongs the honor of having originated the idea that culminated in President Wilson's national preparedness propaganda which today is stirring this country from center to circumference and from White House to Kitchin (pardon the pun).

For to my certain knowledge our American surgeons, representing every conceivable stage of surgical development known to the profession, from the embryonic to the senile surgeon, have been, within the last decade at least, ever ready, willing, and anxious to operate on all comers at any time, place, opportunity, or price, for anything and everything, with utter disregard to the regional or pathological anatomy or previous condition of servitude of the organs operated on. But President Wilson says we are not prepared, and President Wilson is an honorable man. In substantiation of the above to any doubting Thomases, if they be

present, will say I have heard of surgeons operating for hemorrhoids with no idea or interest whether the superior, middle and inferior hemorrhoidal veins were all branches of the internal carotic artery or of the ductus communis choledocus, or were this side or yon side the ileo-coecal valve. I have heard of them operating on a bilateral tear of the cervix with the fanciful explanation that through a reflex efferent impulse transmitted through the thoracic duct the patient's dementia paralytica would be cured thereby. I have heard of them removing ovaries without knowing or caring whether the corpus luteum was produced by torpid liver or by the internal secretion of the over-acting pituitary body. I have heard of all these and other similar operations *ad infinitum et ad nauseatum.*

With a conscientious desire that no surgeon, not even the embryonic, infantile or senile surgeon, should be offended in the least at what I have said or may say, I reiterate with emphasis the statement made at the outset that I would say nothing personal, discourteous or disparaging of our American surgeon, for they are, to my mind, the fulfillment of God's promise to Abraham, in that they are as numerous as the sands of the sea and are daily increasing at the same rate as the proverbial English sparrow or hyphenated Germans. Consequently, if I had a secret thought or desire to say aught against them my temerity would make me desist, for they are gaining on us common family doctors at a terrifying rate. My information and observation warrant this statement, that from two to five are born overnight. But I have heard it rumored among the common family doctors—sub rosa, of course—that a large per cent of the new-born surgeons and a lesser per cent of those more advanced in years innately assume the homogenesis of a peculiar insect, the wasp, which, Natural History tells us, is larger at birth than ever afterwards, and stings but once, then dies. Comforting thought!

At the present uncomfortable birth rate of legitimate and illegitimate American surgeons—mark my prophecy—within the next decade all medical men will be forced into surgery, or perish by surgery, for the the good old family doctor will be a relic of the past or have taken his time-honored place among the not competitive Egyptian mummies.

Every family doctor sees and recognizes the handwriting on the wall and is resigned to his fate. Nevertheless, in his seeming graceful demise he is constantly muttering, almost inaudibly, "Unprofessional ethics, unsatisfying avarice, and insatiate thirst for gore," for there are numerous localities, he says, where all the women—God bless them for what they have been!—and will soon be no more forever to the family doctor. And every surgeon present should loudly shout "Amen" to this benediction on women, for they are today supplying more surface to the square

inch per capita to satiate his thirst for gore than any other animal in captivity. Women! Sweet, lovely creatures they are, to whom the State, Church, and Nation owe all that is beautiful and noble, are daily realizing with meek submission the irresistible influence of the present-day surgeon, and as soon as he enters their home professionally, even before the greetings are over or the examination begun, they pleadingly say, "Doctor, I can't go to the hospital for any operation before next week. Can't you please wait until then?"

For the last time, I insist most vehemently that I would not dare censure, criticise, or condemn our American surgeons here or elsewhere, now or hereafter, for no other reason than that such presumption on the part of the family doctor would be considered idiocy, irreverence, or treason by reason of this fact, that we common family doctors are not considered by our surgical big brothers competent to differentiate between a Wassermann's for syphilis and an Abderhalden for pregnancy, between constructive opsonins and destructive hemoly sinus, between Lane's bone plates and Murphy's bone transplantation, between gall stones and Graves' disease, between anaohylaxis and immunity, between a radiograph and a surgeon's graft, and between an American surgeon and the Omnipotent God of the universe. His seeming infallible, invincible and self-satisfying egotism in all things pertaining to the science of medicine or surgery may call to your mind—not necessarily to mine—a stanza from Alexander's most beautiful and heart-searching poem entitled "The Doomed Man," which is as follows:

"He knows, he feels, that all is well,
And every fear is calmed;
He lives, he dies, he wakes in hell,
Not only doomed, but damned."

Et tu, Brute.

But now, finally and seriously, brethren, I beg that you forget the above attempt to portray by ridicule, exaggeration, and satire the ever-increasing tendency of the medical profession of today to surgical mania, which, we must all admit, is in numerous instances bringing ridicule and contempt on this most noble and scientific arm of the medical science. Forget it and consider me with the class of surgeons upon whom God in His infinite wisdom and justice has bestowed His choicest and rarest gifts, namely, true knowledge, scientific skill, philanthropic love, and almost miraculous power, equalled by few, surpassed by none in any profession, science or trade. This class of surgeons have acquired their true knowledge by burning continuously the student's midnight lamp. They have attained to their scientific skill by climbing cautiously the tedious ladder of surgical experience with measured steps. They have

imbibed their philanthropic love from showers of blessings—the result of their skill in mitigating the suffering and prolonging the lives of the children of men. And they have had their almost miraculous power thrust upon them by the judicious blending of their knowledge, skill, and love into one irresistible force, impartially, conscientiously, and scientifically hurled against the physical afflictions of suffering humanity. This class of surgeons are by no means mythical, or even rare, for we have all seen them face to face, and gladly acknowledge with unlimited pride and boundless gratitude their incalculable value to the science of medicine. This class of surgeons are to the medical profession of today what the sculptor is to art, what the edifice is to the architect, what the compass is to the mariner, and what patriotism and honor were to the slaughtered Belgians. To this class of surgeons universal humanity has ever looked with pathetic pleading and hopeful prayer for the coming of the physical savior, who could amputate the material sin of malignant disease and leave the physical soul untouched; who could excise the material sin of congenital deformity and preserve the physical form of a perfect child; who could dissect the material sins of omission and commission and reconstruct a physical being in the image of man, and who could enucleate the material sin of distorted vision and open the physical eyes to new and undreamed of beauties.

Go ask those who were once blind, but now see; those who were once lame, but now walk; those who were once disabled by unsightly deformity, but now present useful and symmetrical bodies; those who once bore the death stamp of malignant disease, but now bear only the scar as a covenant of restored health; or go ask the family physician, who confidently, though anxiously, subjects the beloved wife of his bosom to the cold glittering scalpel of his surgical brother. Go ask all these grateful beneficiaries of the true surgeon's skill if the pleadings and prayers of humanity for a physical savior have not already been heard and answered.

The true surgeon—and his name is also legion—who knows by modern physical, chemical, and laboratory examinations and tests the nearest absolute pathological condition of his every patient, and armed with the necessary instruments and environments, and twice armed by a modest confidence inspired by a studious knowledge of his case, by cautious skill inspired, by conscientious experience, and by human love, inspired by the ever-present thought that his every patient, however poor, unknown or humble, has some one, somewhere, who is anxiously awaiting his restoration to health. The surgeon fulfilling the above conditions automatically becomes the strongest magnet for universal love ever bequeathed to the son of man.

And last, go with me to the operating room of a surgeon of this class, and behold the unconscious form of some lovely virgin—maybe the only daughter and only child of a widowed mother—and watch her as she struggles to retain her consciousness lest some immodest thought or word escape her virgin lips; watch her as the paralyzing anæsthetic deadens all her senses, save the sense of preanæsthetic confidence in the knowledge, skill, love, and power of the surgeon who, in spotless white, bends over her and into whose conscientious hands she has entrusted her person, her future, her life, and woe to the surgeon who can look upon such a sight and not yearn to know all that his art has acquired through centuries of experience and study.

SURGERY

ACUTE APPENDICITIS WITH PERITONITIS: THEIR RELATION AND TREATMENT.

JOHN WESLEY LONG, M.D., F.A.C.S., GREENSBORO, N. C.

Acute appendicitis should always be hyphenated with peritonitis, or, what is better, two hyphens (=), making the algebraic sign of equation, since acute appendicitis continued equals peritonitis. They are as inseparable as cause and effect. While the latter does not always prove the presence of the former, the former rarely fails to produce the latter. The relation between the two is so close that the one often overshadows the other. Patients are brought into the hospital in the ambulance, with abdomen distended, rigid, tender, knees drawn up, frequent pulse, septic temperature, etc., with the diagnosis of "appendicitis." Strangely enough, the more serious lesion is overlooked in the presence of the initial appendicitis. I would not have you think for a moment that the appendix should be disregarded. Nay, verily, but I do desire to focus your attention upon the larger and more destructive phase of the subject. Appendicitis, whether acute or chronic, is, surgically speaking, a very simple problem; peritonitis is ever a grave menace to life. The one may be compared to the murder of the Austrian Crown Prince; the other is more like the resulting conflagration that has embroiled almost the entire world.

It is not enough to say "patients with acute appendicitis should be operated upon before peritonitis develops." Even the most ignorant layman will admit so self-evident a proposition—after peritonitis is well under way and the patient is getting bad off. It is gratifying to note that the proportion of cases of appendicitis with peritonitis as its chief feature is less than in former years. I hasten to say that delay till peritonitis develops is not always due to inertia upon the part of the family physician. Often he has to contend with the ignorance of the patient, the prejudice of the family, and the perniciousness of meddlesome neighbors. Nevertheless, it behooves us to take inventory of our knowledge concerning these desperate cases and establish as nearly as may be possible well-defined rules for their management.

While accumulated experience has crystallized into well-settled convictions concerning this subject, there are yet many questions relating

thereto that must be regarded as *sub judice*. Also it must be confessed that the conviction of today may be the doubt of tomorrow. Hence, we must ever maintain the attitude of the student. Another reason why a prudent man hesitates to recommend any special line of treatment is that the unthinking may imagine that the particular method advocated applies to all cases. Nothing could be farther from the truth. The subject is so large that we will notice only certain aspects of it.

THE TIME TO OPERATE.

In deciding when to operate no hard and fast rules can be relied upon. One's surgical judgment is the safest guide. As a general proposition, a patient seen within the first twenty-four, forty-eight, or even seventy-two hours, should be operated upon promptly, whether it be daytime or night. You will not understand me to say that it is safe to wait the time limits just mentioned. I urge just the contrary. Every hour lessens with increasing rapidity the chances of recovery. Nor is it exactly correct to measure time by hours alone. The general morale of the patient must be considered. Can he withstand the added trauma of the operation plus the anæsthetic? Is there some complication present that may be made worse by the operation? I lost an elderly man recently who was brought in early enough to come within the time limit. Operation was done at once, but the man died within twenty-four hours. His death was not due to appendicitis nor peritonitis, but to nephritis, as was shown by scanty urine, casts, albumen, delirium, and coma. Delay would in all probability have given him a better chance. Postponement carries an extra hazard in children because their omentum is undeveloped; they stand starvation poorly, and their resistance is more readily broken down.

LATE OPERATIONS.

Certain of these patients are seen too late for an early operation. This condition is always a deplorable one multiplied tenfold. They require the most judicious handling. Figuratively, they are walking over thin ice. The least jar, as from operation, anæsthetic, purgation, or even rough palpation, may cause them to break through.

What, then, shall we do? Ochsner has taught us some invaluable lessons touching the management of such cases. In the first place, let me urge you to neither purge nor feed. There is nothing so harmful in the presence of peritonitis as purgation and feeding. Both increase the gas in the alimentary canal, gas promotes peristalsis, peristalsis spreads infection. These patients should be propped up, either by elevating the

head of the bed or the body of the patient. The position must be a comfortable one, else it is wiser to leave the patient prone. He should be sustained by small nutrient enemas and hypodermoclysis of glucose in salt solution or sterile water. The Murphy drip method is applicable here. If nauseated or the stomach dilated, frequent gastric lavage is an invaluable remedy. If internes would carry a stomach tube about their necks instead of a shiny cow-horn shaped stethoscope in their outside coat pocket they might be of more service to their patients. In the hospital where I work the nurses are taught to do lavage. They frequently save life thereby.

Operation is best done when the peritonitis is receding, rather than spreading. The most gentle manipulation is demanded. In some instances the abdomen may be opened by a puncture incision, using a local anæsthetic or a few whiffs of gas. Just a tiny nick through which to insert a rubber tube is sufficient. It is often best to do this without removing the patient from the bed. The tendency among surgeons today is to not delay unduly opening the abdomen, even in the worst of late cases. Some very wise surgeons refuse to remove the appendix, preferring rather to do so later. Certainly, should the patient survive, the appendix can be removed with greater safety subsequently. However, I have always felt that when more than a puncture wound is made and the appendix can be easily removed it is well to do so; otherwise, leave it alone. Here again the general condition of the patient must be carefully studied. It is as important to know what kind of a patient the disease has as the kind of disease the patient has.

THE ANÆSTHESIA.

Every factor brought into use in abdominal surgery assumes added importance when applied to appendicitis with peritonitis. The more severe the case the greater the influence of each factor. This is particularly true of the anæsthesia. Nothing connected with abdominal surgery is so barbarously done. Go where you will, in the clinics of this country or Europe, the anæsthesias one sees make a conscientious man shudder. Crile has done more than any one else to teach us the truth regarding anæsthetics. Whether or not his anoci association produces less shock than other methods may be questioned, but most assuredly the principles he lays down are correct. Under no other circumstances does a faulty anæsthesia produce more disastrous results than in patients septic from acute infectious appendicitis with peritonitis. Whether one uses ether, gas, or a local anæsthetic, he cannot walk too delicately.

It gives me great pleasure to say, based upon a somewhat extensive

observation both at home and abroad, that America, the birthplace of anæsthesia, is leading the procession in the matter of safer anæsthesia. The indictment brought today is fast losing its significance in our foremost clinics. Progress is noted in the abolition of chloroform, the open drop method of giving ether so widely popularized by the Mayo clinic, pharyngeal and intratracheal methods, gas-oxygen anæsthesia, and the more extensive use of local anæsthetics. But above all else, the improvement consists in employing trained anæsthetists. No anæsthetizer can be called an expert who spends a good part of his time talking with those about him or watching the surgeon to see how he may do the operation himself the first chance he gets. A nurse with proper qualifications makes a very efficient anæsthetist.

THE INCISION.

The incision is a matter of considerable moment. In chronic conditions one may employ almost any incision he fancies. In acute septic abdominal diseases it is imperative that it give the readiest access to the lesion. I have tried every kind of incision—the mid-line, straight rectus, transverse, semilunar, and oblique. I finally settled down to the latter as being the most serviceable.

The incision employed is essentially that of McBurney, though considerably amplified. The illustration shows clearly its location and successive steps. Note its relation to the umbilicus, iliac crest, and pelvic portion of the abdomen. The skin and fat have been incised and drawn apart and the fibers of the external oblique separated. This gives a wide exposure of the deeper layers of the abdominal wall. One can now determine by inspection and palpation the intra-abdominal conditions far better than was possible from the outside. This method of examining the abdomen I have not seen mentioned. Having confirmed the preoperative diagnosis, it is easy to decide whether to enter the abdomen high or low, close to, or through, the rectus sheath, or nearer to the iliac crest.

The muscular portion of the internal oblique is opened with forceps. This brings us to the transversalis fascia, which is incised in line with the internal oblique. The fascia tends to contract, hence it is well to grasp its edges with forceps as appears in the illustration. In the subsequent closure, care should be taken to suture the transversalis, since it is probably the best safeguard against hernia. The peritoneum may be opened in any direction desired. The oblique incision brings one directly into the right iliac fossa. If the appendix be "at home" it is easy to find and remove. Should it be hanging over the brim, flirting with

the ovaries, or wholly within the pelvis, or located post-cecally, or should it be of the undescended variety, it is still comparatively easy to reach.

The lower end of the incision which lies over the pelvis may be lengthened if desired. In doing so, no muscular fibers should be cut. The sheath of the rectus is entered and opened downward, pushing the muscle aside. Sometimes only the skin and fat incision need be made longer. Through the remaining layers of the abdominal wall a short transverse incision can be made for pelvic manipulation or a puncture done through which to introduce a drain. The same is essentially true of the upper end of the incision when one wishes to go higher in the abdomen, either for exploration or drainage.

The closure of an incision made after this manner is comparatively easy. But the great advantage is that it leaves the abdominal wall strong, even though two or three drains are employed, as shown in the illustration. While one would rather have a hernia than a hearse follow his operations, he naturally prefers neither.

DRAINAGE.

I approach this part of the subject with some trepidation, first, because I am addressing an audience reputed for its conservatism as well as its wisdom, and, second, because I stand in the presence of perhaps the greatest surgical authority in the world, who has kindly consented to discuss this paper.

There is no practice in surgery that is more firmly established than is drainage in septic cases; in fact, it is the *sine qua non* in most instances. Before the coming of the abdominal surgeon, nature drained many of these patients by rupturing the abcess into the bowel. The septic pus lying against the intestine softened and weakened the tissues till finally the pressure caused them to yield and the pus would escape into the gut. Shortly afterward, a pint or more of bloody pus would pass per rectum. When the doctor paid his next visit the patient would be sitting up in bed "hollering" for something to eat. Thus nature cured the patient by drainage.

In the matter of drainage, the peritoneum naturally plays an important role. The first thing it does when invaded by infection is to pour forth an abundance of serum. It is easy enough to demonstrate the presence of peritoneal fluid by catheterizing the pelvis through the abdominal incision. A glass catheter gently slipped to the bottom of the cul-de-sac does no trauma, nor is it likely to spread infection. It is not unusual to find the pelvis half full to running over with serum within twelve to twenty-four hours of the initial symptom. The fluid found

varies from a light straw-colored serum to one of greater or less turbidity. It often resembles pus, due to the superabundance of white blood cells. The peritoneal fluid is the patient's first line of defense, zealously trying to prevent systemic invasion. To mop it out or drain it away is to rob the patient of his best protection. The earlier operators lost many of these patients because they not only drained but washed out the abdomen with large quantities of salt solution. It is perhaps fortunate that only a small portion of peritoneal fluid will escape through drains. Indeed, many surgeons go so far as to say the peritoneum cannot be drained for more than a few hours at the farthest, since the rapid formation of adhesions precludes the possibility of long continued drainage. Speaking of adhesions, what an irreparable injury the surgeon does his patient whose abdomen he drains without sufficient cause!

But let us turn for a moment to those cases which all agree should be drained. In what way does drainage benefit the patient? The answer is twofold. First, it removes at once the excess of septic fluid. The second benefit is quite as important, namely, it disturbs the pathological equilibrium. The incision plus the escape of septic fluid relieves the tension and starts the lymphatic current outward, rather than toward the diaphragm, while intra-abdominal pressure promotes exosmosis. The peritoneum is thereby given the opportunity to dilute and absorb more slowly the infection lodged in its innumerable recesses. The result is that the patient is not overwhelmed by the toxins. How else can you explain the recovery in those fulminate cases which are cured by simply making a button-hole incision and sticking in a small drain? Nor is this all the peritoneum does. Secondary abscesses, which so often occur notwithstanding the abdomen has been drained after the most approved fashion, are evidence that the peritoneum continues to safeguard the patient. Such an abcess means that the peritoneum failing to absorb all of the infection rallies its resources and circumscribes the resulting pus by the formation of adhesions; in other words, the peritoneum does most of the work, while the surgeon gets the credit for it.

A careful study of the subject forces us to the conclusion that while in the vast majority of instances drainage should be employed, yet under certain circumstances the peritoneum is far more able to cope with infection alone and should not be handicapped by the presence of a foreign body in the shape of a drain.

Were you to ask me the dividing line between drainage and nondrainage cases, I would have to confess that the distinction is not yet clearly defined. I know this, I have drained many patients that I am now convinced need not have been drained. I have omitted draining in only two, and later regretted it. My records show twenty-seven patients

having acute appendicitis with more or less peritonitis and fluid in their abdomen in whom no drainage was employed, and all made a perfect recovery. While writing this paper I operated upon a young man whose pelvis was full of creamy-looking serum. The abdomen was closed, and he made a normal recovery. The same is true of a young lady with her pelvis and lower abdomen full of straw-colored serum. A patient not drained recovers much more smoothly than when drained. I recognize that this practice is debatable ground. It is the advance firing line of abdominal surgery. In the solution of the problem the clinical surgeon and pathologist must work hand in hand. My own observations are being checked up by the laboratory findings.

The propriety of draining having been determined upon, the next question is as to the material that should be employed. I have practically abandoned everything else for soft rubber tubing, with or without a wick, and the so-called cigarette. In wide open wounds gauze is sometimes placed superficially. When it is necessary to pack a bleeding point gauze may be used to advantage. That portion of the gauze above the bleeding area should be surrounded with rubber tissue, which renders it easier to remove.

In placing drains several essentials should be borne in mind. First, the drain should reach the most dependent portion of the infected area, whether it be the cul-de-sac, the kidney pouch, or elsewhere. Secondary abcesses are often best treated by drainage per vaginum, occasionally per rectum. When placed in these latter situations gravity aids capillarity. I recently drained such an abcess through the vagina, occurring in a lady eighty-two years of age. Second, it is imperative that drains do not rest against blood vessels. The same is true to a less degree of the bladder and intestines. I lost a patient in my earlier experience from hemorrhage of the iliac vessels due to pressure necrosis caused by the drain. Hemorrhage from the deep epigastrics is often attributable to the same cause. The third item is to begin removing the drains early, usually at the first dressing on the day following the operation. It is good practice to gently loosen the drain and clip off an inch or two daily. The more drains one uses the sooner some of them should be removed.

RESUME.

With the exception of the wider utilization of the oblique incision, the method of checking up the diagnosis after partially opening the abdominal wall, and not draining certain cases, there is nothing especially new in the suggestions herein offered. Their value consists largely in the fact that they have been systematically tried out through many years of

handling a rather large number of cases of appendicitis with peritonitis, they, therefore, carry the endorsement of experience.

NOTE.—The illustrations used in this paper are now in Dublin, Ireland, where this paper is being published in the Dublin Journal of Medical Science, Owning to war conditions the drawings have not yet been returned.

DISCUSSION.

DR. W. J. MAYO, Rochester: Dr. Long, in his excellent paper, has placed the emphasis at exactly the right point. It is not the appendix of itself which causes the great mortality, but the peritonitis, which is set up by the infected appendix that is responsible. The confusion which has arisen and which at times has introduced bitter controversies between members of the profession has been due to the failure to make a clear distinction between these two conditions; the one, speaking of appendicitis, the other, discussing the question of the peritonitis, which is the result of the appendicitis. Dr. Ochsner introduced the so-called starvation method of treating appendicitis and especially peritonitis. The principles that he enunciated were of the greatest possible value and have now been pretty generally accepted, but this has not meant that these patients should not be operated upon. On the contrary, it means that, as soon as proper conditions can be established, we must operate upon every case of appendicitis in order to prevent that complication—peritonitis—which Dr. Long so justly emphasizes. The treatment of peritonitis, no matter what its cause, is one which requires most excellent judgment and wide experience.

Drainage was considered for a long time the *sine qua non* of the treatment of peritonitis. Today we know that the milky fluid which appears in the earlier stages is a defense manifestation and the patient does better if this is not drained away, as Dr. Long has shown in the splendid results obtained since he stopped drainage in this condition; and yet it takes a surgeon of great acumen to know when the stage of defense has passed, when leucocytes have become pus, and the fluid is infected so that drainage becomes necessary.

DR. CYRUS THOMPSON, Jacksonville: I am one of the most diffident men, Mr. President, that you ever saw. I am called unexpectedly to participate in this discussion. Where I think I know something I don't mind talking. But there are so many things about which I know nothing that I seldom talk at all. I am sure my reticence is remarkable. Nevertheless, even my friends have accused me of talking sometimes

about things I didn't know anything about, and of talking about such things very acceptably withal. It may be pardonable. Just think for a moment—all of you! If none of us ever talked but of the things we know, how dull, how melancholy, how silent this sweet old world would be!

We are now in surgery, and surgery is cutting up; and you all, of course, know I never cut up. I am not a surgeon. But I can understand and sympathize with Dr. Templeton, because I, like him, am a country doctor. I can appreciate, also, the necessary and good work of the surgeons. They sometimes save a whole lot of folks out of a mighty sight of trouble. What marvellous repairs they sometimes make of pitiable wrecks! But surgeons, I fear, do sometimes put a lot of folks into a sight of avoidable trouble. The surgeon is charmed by the beauty of the operation; only the excellence of end-results fascinates the common practitioner.

Now if a surgeon did not *surge* he would be only a common doctor, wherefore the surgeon is scrupulous to maintain the cut of differentiation. But have not many men and women suffered many things of many surgeons who would have suffered less in the care of a level-headed practitioner of medicine? This paper, indeed, is a criticism of methods, about which the surgeons themselves are disagreeing. But we are learning by our mistakes; meantime, if "Jones, he pays the freight," still let us comfort ourselves that we are working for Jones.

Away out in the country, where there is no surgeon above the sawmill grade, and in unsurgical housing and among people too poor to incur the expense incident to a hospital, it is wonderful what magnificent care, even in cases of appendicitis, Dame Nature, unhampered, takes of her poor. I recall a case occurring in my own work last week—a sharp, acute attack. With posture, rest, starvation, and ice, he did well. I saw him Sunday; the acute symptoms all gone, and I assured him that he would come out of his attack all right. "But you may later have another attack," I said, "when you may not get along so well." Now, if I had been a surgeon, I should have shown that fellow something. As it was, I said, "If you want to be perfectly safe from future attacks, and if you would like to put on a little style, and have some experience to talk to the neighbors about, let me send you down to New Bern or to Wilmington in two or three weeks and have them take the infernal thing out and show it to you." In that case, he would know what it was that had caused him all this trouble; and you know that a fellow always wants to know the cause of his trouble,—and some want to see it.

Do you recall the story of the Irishman who had his appendix removed and had it saved for his inspection? Let me tell it to you. Desiring

humanly not only to know, but to see the cause of his trouble, he made the surgeon promise to save the appendix for him. The surgeon, genial soul that he was, said, "Pat, I'll lay it right here on the window sill." When the son of Erin was coming out from his ether, a suave little nurse, passing by, said, "We saved your appendix for you, and you can see it by the window." He looked toward the window, where a monkey outside was making faces at him. "Now, go along, old fellow," said he; "you've given me a dale o' trouble, but I've had you cut out at great expense to myself, because I wanted to see you. Now don't do that! G'wan, g'wan, and remember that your mother is a very sick man!"

Dr. Royster: I had not expected to say anything today upon this paper, because I find myself differing in no respect from the others who have spoken. I am delighted to find that someone has followed me, after once having quite an argument with me upon the subject. Some years ago, I read a paper upon the inconsistency of the gauze drain, and I asked this question: "When is a drain, not a drain?" The answer is: When it is a stopper. Most of the drains that are put in do not drain at all, except from the outside in many cases. I feel that Dr. Long has done a great service in bringing up an old subject in a new way. I have not yet learned how to distinguish always between those cases that demand drainage and those that do not. I feel, however, that we can say, "When in doubt, don't drain." If we knew when we put in a drain we were draining every square inch of the cavity, it would be very good. You localize that drainage spot, you drain wherever you put the tube, and no where else unless you get the benefit of gravity. I feel also that when we can in any way reduce the disability from appendicitis operations, reduce the time in bed, by any method of using stab wounds, and closing the original incision, we have done good work. In some cases the wound will become infected. While the peritoneum is very resistant, the wound tissues are not, and at times unless we drain the wound itself, we frequently have a collection of pus there which can very easily be rid of.

We have been making a stab wound through the peritoneum, the external oblique muscle and the skin, and closing the wound itself. When we do that we have a drain directly through the stab incision, down to the portion you wish to drain. Sometimes if we should get infection of the wound we would not open the wound, but make another stab incision below it, and let out the pus, and inject some ointment and put a hot dressing on it.

Dr. J. T. Burrus, High Point: I feel very, very little to approach a subject after it has been handled by masters; the only thing I desire to say in this connection is that the point in differentiating between the serum in the abdominal cavity, that we all recognize as an essential, and is nature's effort and nature's medicine that has been thrown out to protect whatever organism may have been turned loose in the peritoneal cavity. Now, if it were possible that every man could have a large and continued experience before opening an abdominal cavity, then I think it would be very ideal to say to that fellow, "You are able to discriminate between those cases that must be drained and those cases you may not drain." I am sure this is a long step forward, and probably well in advance of many of us who do some surgery.

The point is this, that if there is doubt about the drainage, my position would be the reverse of Dr. Royster, instead of not draining it, put in a drain.

Now in the smaller communities in North Carolina we have a number of men that probably have only opened 500 or 600 abdomens, and those men will be continually opening abdomens as matters of necessity in their community. These people being deprived of the experiences of a learned surgeon. If there is a question about it, I know that my night's rest would be better, my heart quieter, and my blood pressure less, if my patient had a drain in his belly, if he has peritonitis.

I want to say here, I regard no man in North Carolina as being greater than the essayist, because I know he is one of North Carolina's biggest surgeons, and I am sure that I shall endeavor to follow his teachings, but I shall have to say many prayers over an abdomen full of pus before I am going to sew that abdomen up without a drainage tube in the cavity.

I recognize drainage does not always drain. Frequently the serum is thrown around that tube and it does not drain the entire cavity. In many cases, if you put a drainage tube in the abdominal cavity, it drains something, and the natural inference is that this drainage is necessary. I am going to do my best to follow Dr. Long's teaching and words of Drs. Royster and Mayo.

If I have a case next week where I will operate on, and the case is one of general peritonitis, I am going to put a drainage tube in the abdominal cavity.

Dr. Templeton: I am aware it is not considered good form to speak of war in the presence of Hannibal, and I have some hesitancy in talking on a surgical subject in the presence of these masters of the art. But this is a question of treatment of appendicitis with peritonitis to

prepare for an operation. My greatest regret is that this paper was not read fifteen or twenty years ago. If we had had it then it would have done away with much of the prejudice in the minds of the laity and profession against operations for appendicitis. I was reading the other day of some statistics given fifteen or twenty years ago by Dr. Deaver, in which he reported a number of cases he operated on in the interval. And an equally large number operated on for appendicitis in the acute stage, with the death rate of 18 or 20 per cent. The greatest objection to waiting for the internal treatment is that the patient begins to get better and then has no use for a surgeon. I say that is the greatest objection to waiting.

Now the treatment of a case don't always mean surgery, but to the surgeon like Dr. Long it is a great temptation to do some surgery, and I am glad to hear him advocate waiting. It has always been a question with me when a patient that has passed beyond the stage of an early operation, should be taken to the surgeon. It is the stage of recession, as I understand Dr. Long, when you may operate, if you can get that state, but between the beginning of appendicitis and the time you call the surgeon, what are you going to do? The patient expects something done.

When I am called to see a patient I find has appendicitis and has already passed the stage of early operation, I give him opium. I grew up under the old Adam Clark opium treatment, and saw more get well on it than anything else in the old days. I give plenty of opium, and put an ice bag to the seat of the trouble, or in the country, I use hot poultice and generally they get well and don't have to have the surgeon at all.

Hereafter I shall advise as soon as they reach the stage of recession to call Dr. Long in my case.

Dr. J. W. Long: I will not reply to what my good friends—Drs. Templeton and Thompson have said. It was too rich and spicy to spoil. I will begin with my former student, Dr. Burrus. I am glad Dr. Burrus has gone to praying. When he sat on the benches in front of me many years ago and I was trying to teach him surgery, I sent up many petitions in his behalf.

I will say to my dearly beloved friend, Dr. Royster, that I congratulate him on using the form of drainage which he and I both saw used at the Mayo clinic fully ten years ago. It is a very good method of drainage.

Now, gentlemen, laying frivolity aside, we will discuss the subject before us. Since I am the author of the paper please allow me to put

my own personality aside. I desire to recommend to you that apart from the author, and even the paper itself, the subject is the most important surgical question that will come before this Society. Why? Because there are more cases of appendicitis than any other serious surgical problem with which we have to deal. Appendicitis occurs in the work of every physician as well as that of the surgeon. Therefore, it is very opportune for us to stop a few minutes to discuss the problems connected with this great question.

The principles which I have laid down are not of my own making. They are surgical truths which have been worked out by many men who are not only surgeons but students.

It seems to me that the views expressed in this presence together with the splendid endorsement which Dr. Mayo has given should furnish food for thought and careful consideration. We might go farther, leaving the paper out of all consideration, and remember only what Dr. Mayo has said regarding the cause, pathology and treatment of peritonitis and we will have been repaid a thousand times for coming to this meeting.

HYSTERECTOMY: REVIEW OF A SERIES OF CASES.

M. H. Biggs, M.D., F.A.C.S., Surgeon to The Rutherford Hospital, Rutherfordton, N. C.

In considering the indications for hysterectomy and the details in the technique of the operation, we encounter widely varying views and practices. There can be no controversy in the matter of early cancer, either of the cervix or fundus. The entire organ must be removed, preferably with the tubes and ovaries and the greater part of the broad ligament. In advanced cases I have confined my efforts almost entirely to palliative measures, in order that early cases may not be discouraged by failures in late cases. This position seems to be justified by a marked increase in the number of operable cancer patients that are presenting themselves, and in the readiness with which they submit to the operation.

Some of you may have followed the school which is content with applications of the Röntgen ray to myomata and fibromata of the uterus. There is no question that many of the symptoms, including hemorrhage, caused by these growths, are cured or ameliorated by the Roentgen ray, and that the size of the tumors is markedly reduced, but there may still

be discomfort and interference with function in adjacent organs due to the remaining pathology. To my mind the Roentgen ray treatment should be reserved for those cases in which there is some adequate contraindication to the operation, or as an adjunct to the operation.

Conservation of one ovary alone in hysterectomy is subject to lengthy debate. Prolongation of the sexual life of a young woman and retention to her of the ovarian secretions is certainly desirable when it can be accomplished without suffering or disability. This can only be secured when the ovary is suitably situated and has an unimpeded blood supply.

When it is necessary to sacrifice both tubes and both ovaries, the uterus should be removed when the patient's condition warrants the slightly prolonged ether period. I am thoroughly convinced of the truth of this statement, after at first reluctantly adopting the procedure but with recent uniform adherence to the practice. It is particularly advisable in inflammatory cases, when the uterus is firmly bound down posteriorly and perhaps covered in above and in front as well by adherent structures. Frequently in these cases, when freed of adhesions, the uterus presents on a large part of its surface areas denuded of peritoneum or covered by oozing fringes of connective tissue, to which any adjoining structures coming in contact will certainly become adherent.

In the majority of cases requiring a bilateral salpingo-oöphorectomy, we are dealing with a uterus the seat of disease, and in any case, a functionless organ and one that may well be the seat of cancer at a later period. If we leave an unhealthy uterus and the woman has even leucorrhœa, she cannot be considered cured. We can usually peritonize satisfactorily after a hysterectomy in inflammatory cases, and if a thorough operation and careful peritonization are done convalescence is incomparably better and sequelæ relatively nil.

Preparatory treatment is of great importance. Free purgation is found necessary in most of our patients. This, preferably, should be accomplished at least two days previous to the operation, so that the patient may have two comfortable, undisturbed nights before the operation itself. Rest in bed is insisted upon during this period, in order to equalize the circulation and to accustom the patient to voiding and having bowel movements while on the back, as well as to meet the need for general bodily rest, which is usually manifested. Water is given freely, as all secretory functions are generally subnormal. Often on admission the patient is voiding between twenty and thirty ounces of urine which, with water alone, is increased to perhaps seventy ounces in the twenty-four hours. We certainly find that the more water we get into a patient before operation, the less is requested or required after it.

Functional test of the kidneys should be made when indicated. If blood pressure is abnormal, it should be corrected when possible; no hard and fast rules can be laid down, however, as to prohibitive pressure, either high or low. Your experience has probably been similar to mine. I have done a hysterectomy on a patient with a preoperative systolic pressure of eighty with an absolutely normal convalescence. Recently a patient was brought to me with an early cancer of the cervix, whose weight was 260 pounds, the urine showed nearly one per cent of albumin and granular casts. There was a mitral murmur and the systolic pressure was 235. Her physician expected an immediate operation, which, however, was postponed for ten days. When operated the systolic pressure was 170, albumin and casts had nearly disappeared. She was voiding between sixty and seventy ounces of urine a day, and a vaginal hysterectomy was done with entire success.

So far we have no index as to how a particular heart is going to withstand an operation. I have frequently asked our medical colleagues how we are to determine the heart that is going to fail under the strain, but they have not told me.

TECHNIQUE.

I prefer a median incision, because I believe there is less hemorrhage, that the resulting scar is stronger, that there is less danger of wounding the epigastric vessels in making the incision and in closure, and less trauma to these vessels in retraction, and that there is less liability to subsequent development of hematomata and phlebitis.

The skin should be kept covered throughout the operation. If the uterus can be well elevated, or even delivered from the abdominal cavity, ligation can be more easily accomplished and there is less danger of wounding the ureters, as the uterus is lifted away from them.

My choice of ligatures for the ovarian and uterine arteries is silk, because it can be tied under great tension and the knot is less likely to slip. Perhaps my best warrant for the use of silk in this situation is that I have never had a secondary hemorrhage and am afraid to make a change.

Unless the operation is done for malignancy, the stumps of the round ligaments and broad ligaments are left long. This is done in order that the round ligaments, and perhaps the broad ligament stumps, may be anchored into the cervical stump and give it support without making undue tension.

In doing a supravaginal hysterectomy the amputation is made rather low, and all or as much as possible of the mucosa of the cervical canal

is removed with the uterus by a conical dissection. When this is done carefully, the entire mucosa is generally excised. Two great advantages of this method are that the woman will certainly not have leucorrhœa from the remaining stump, and a frequent starting point for cancer is removed. While I know that it is not uniform practice to close the cervical stump, I have always done it, and it is particularly indicated when a conical dissection is made, the sutures dipping deep into the cervical tissues so as to prevent bleeding.

Peritonization is time-consuming, but it is indispensable in a finished operation. The peritoneum should be sutured over all stumps and cut edges of tissue, so that when the operation is completed there are no exposed raw surfaces. This leaves the pelvis clean, prevents adhesions, overcomes much post-operative pain, and assures a smooth convalescence and freedom from complications.

A clean hysterectomy with proper peritonization will do as well after operation as a clean appendectomy, and the mortality should not be much higher.

The vaginal route is chosen for cancer of the cervix, and for cancer in any part of the uterus in fat women.

For anesthesia I have always used straight ether given by an experienced anesthetist.

I know of nothing that is more helpful to the surgeon than taking account of stock. If we have formulated certain more or less elastic rules and principles to govern us in certain conditions, we must cast up our accounts at intervals and see where we stand. What is the net profit in results to our patients and to ourselves? Do the follow-on records show gain or loss in our ability to relieve diseased conditions, and to leave our patients not only rid of their original pathology, but in a condition of comfort and well being?

I have purposely chosen for this report a series of 134 consecutive hysterectomies with eight deaths, instead of the last 108 consecutive cases in which there have been three deaths, because the former may more nearly represent the average.

Instead of giving a detailed list of diagnoses, I have grouped the cases as follows:

Fibromata and myomata of the uterus; 70 cases.
Cancer of the uterus; 22 cases.
Bilateral subacute or chronic disease of the adnexa with adhesions; 30 cases.
Acute disease of the adnexa with pelvic peritonitis; 2 cases.
Chronic glandular endometritis with persistent bleeding; 5 cases.
Ectopic gestation with disease of the opposite side; 3 cases.
Ruptured uterus with peritonitis; 2 cases.

Among interesting complications in the series were: two cases of ectopic gestation associated with fibroids; one pregnancy of eight and a half months, impossible of delivery on account of the size and situation of a fibroid, in which a successful cesarean was done; and one uterus didelphus with bilateral hydrosalpinx and extensive adhesions.

The average highest records in the series at any time after operation were: Pulse, 116; temperature, 101 degrees.

The average highest records twenty-four hours after operation were: Pulse, 96; temperature, 99⅖ degrees.

The average time consumed in the operation was fifty-five minutes.

The average amount of ether administered was 7⅓ ounces.

The average stay in hospital, including the period preparatory to operation, was nineteen days.

No hypodermic or other medication was given before operation, unless especially indicated. After operation sufficient morphia was administered to prevent undue suffering and restlessness.

There were no cases of postoperative pneumonia, ileus or acute gastric dilatation. There was one case of phlebitis; one of prolapse of the fallopian tube into the vagina in a vaginal hysterectomy; one vesicovaginal fistula, the cause of which is not known but which healed in a few days when a self-retaining catheter was introduced and the patient kept in the prone position. In one pelvic inflammatory case in which the mucosa of the cervical stump was not removed, there was a persistent leucorrhœa. This was cured by destruction of the mucosa with curette and cautery.

The number of total hysterectomies was thirty, of which seven were vaginal, and two were by the combined method.

Of the eight deaths, four were in cases of fibromyomata, and four in cancer patients.

In every case diagnosed as cancer there has been an expert microscopic examination of the removed uterus, unless the microscopic appearance was clear and positive. In ten cases of suspected early cancer, curettings have been submitted for microscopic report. By this means the clinical diagnosis has been confirmed in all but two cases. These two were operated and both proved to be cancer. One of them was of extreme interest; the pathologist of one of our largest gynecologic laboratories stating in his report that it was the earliest case of the mural of interstitial development of cancer ever received at the laboratory, and that it will be the subject of a separate published report by him.

There are a few cases too recent to report upon except as to the operative outcome, which has been done. Of the balance we have positive

knowledge in 84 of the 126 cases. Three are known to have died since they left the hospital. Two of these were recurrences in cancer of the uterus, and one fibroid case was killed in a runaway accident.

The last letters to patients, sent out since January first of this year, were accompanied by a blank on which were a uniform set of questions to be answered by them. Those of you who have done any of this follow-on work, know how difficult it is to secure reliable data and positive statements. We tried to word our questions so that they would be understood and so that most of them might be answered by yes or no, or a similar definite statement. The results are unusually satisfactory from this standpoint, and in very few instances has it been necessary to deduce in order to record the patient's intended reply. Where we have failed to receive replies, it is because we have not been able to reach the patient, either directly or through the family, known friends or a physician.

Among the questions were the following:

1. Did you have the same sort of trouble after operation as you had before, if so for how long, and do you have it now?
2. Were you completely relieved of your trouble by the operation?
3. Have you had any return of the original trouble, and if so when did you first notice it?
4. Were you very nervous after leaving the hospital, and if so for how long?
5. Do you have any trouble in the cut where you were operated?
6. Have you been operated on since your womb was taken out?
7. How long after operation was it before you felt well and strong and could work?

Questions 1 and 3 were designed partly as a check on question 2, which reads, "Were you completely relieved of your trouble by the operation?" To this question the responses show an unqualified affirmative reply in 72 of the 81 cases; a perfectly indefinite reply in one case; an evasive answer but a statement that she had not had any return of the trouble in 2 cases, and a positive statement that there had not been relief in six cases. Based on these replies, we may say that 74 women, or about 92 per cent, consider themselves as entirely relieved.

The average duration of nervous symptoms after operation was seven months. In striking this average I have included those patients who stated that they were still nervous at the time of the last report. Very few of the patients operated on had passed the natural menopause, and those that had not were told that an artificial menopause would be produced, and that they must expect the symptoms accompanying it to persist for from six to twelve months. The average actual existence of nervous symptoms has, therefore, come well within the prediction.

To the inquiry as to whether there was any trouble in the wound, one patient reports the existence of a small hernia. This was in a drainage case.

Only three cases are known to have been reoperated; one for recurrence in a cancer of the cervix; one case of fibroid tumor for hernia in the wound, and one case of fibroid tumor subsequently operated for a primary cyst of the liver. These reoperations were done in the Rutherford Hospital.

The reports show great variation in the time elapsing between the operation and resumption of duties. There are always some patients who "are not well yet and cannot work any." Striking a general average in this series, and including those reporting that they are not yet well, the time required for complete recovery was three months. I have always felt that the period of entire recovery after capital operations is longer than most of us appreciate. We are apt to lose sight of the fact that it is not alone the operation, but the debilitating effects of the diseased condition as well, that must be overcome.

The great majority of patients represented in this series were from the working classes, of very limited means, unable to live the sort of life which would favor early recovery, and compelled to do rather arduous labor at an early date after leaving the hospital. Can we reasonably expect these suffering, constipated, toxic, anemic, overworked women to come to themselves in less than three months after an operation of such magnitude?

Greater attention to detail in the preparation of patients and in the operation itself has enabled me to secure progressively better immediate and ultimate results. This is shown both in reports coming from patients and in the fact that in the last 108 cases there have been only three deaths. One of these was from peritonitis. The other two were what might be called unfortunate deaths, both being from cardiac embolism in colored women, one on the twelfth day, the other on the fourteenth day after operation. Each of these two patients had made an apparent complete recovery, was up and about and ready to return home.

DISCUSSION.

Dr. H. F. Long, Statesville: It was difficult to hear his paper from where I sat, and I will ask to be excused from discussing it in detail, because I really did not hear it, and I think others are in the same position.

In my experience with hysterectomies, unless the cervix showed some marked disease, I have left it in situ. I have had vesico-vaginal fistula

follow the complete removal of the cervix with uterus which would not have occurred, had I left the cervix. For some years I have followed the method of Dr. John G. Clark, to pass a very hot cautery through the cervical canal, after the uterus had been cut away. This destroys the endometrium and glands, and when this method has been followed, I have had no complaint of leucorrhea or prolapsus. Prolapsus can be absolutely prevented by attaching whatever stump you have to the broad and round ligaments.

I am sorry that I cannot discuss this paper further.

DYSMENORRHEA.

Henry F. Long, M.D., Statesville, N. C.

To discover new and certain methods whereby we may preserve health or restore to health the diseased, has long been the laudable ambition of every member of our profession. This has been the goal of their desires, shown by their keen searching investigations into the cause of disease, the curing of those diseases the cause of which they know, above all, their untiring, zealous, unselfish efforts to prevent disease. In certain instances their strenuous, self denying, self destroying efforts have been crowned with success. Humanity has always reaped the benefits of such work. The investigator often has paid for his knowledge with his life. Still, the good work has gone forward daily, drawing more and more recruits into the field, for even so the harvest is plentiful but the laborers are too few.

Formerly it was the custom to endeavor to discover a cure for the disease, little or no effort being made to discover the cause thereof. Certain names were given to designate diseased conditions, wherein certain symptoms predominated. Thus were the various diseases given names, often inappropriate, erroneous or misleading. Modern investigators and students of disease disregard the ancient titles and seek to classify disease according to what it actually is, not by the symptoms produced.

In furthering this method, I wish today to submit some observations upon that condition known and described as dysmenorrhea. Some of the groups of symptoms so called I believe to be due to a diseased condition elsewhere, and in such instances the diagnosis of dysmenorrhea is an example of error in diagnosis.

For years and years it was according as symptoms seemed to justify,

grouped as follows: (1) Ovarian; (2) Uterine. These main groups were further subdivided, the Ovarian into: (1) Neuralgic accompanied by dysmenorrheal membrane, and (2) that due to malformation; the uterine into (1) Obstructed and (2) Unobstructed.

Further description of the condition makes mention of the fact that often one ovary could be felt in the culdesac of Douglas. This palpable ovary was usually found enlarged—from slightly enlarged up to the size of a hen egg.

Membranous dysmenorrhea, with exfoliation and very severe pain they believed to be due to obstruction of the cervical canal. The most frequent cause of dysmenorrhea was thought to be stricture of the cervical canal, due to fibroids, flexions, versions and contractions.

Treatment was empirical, and ran from what was called palliative, that is, rest in bed, light diet, hot water bottles, hot ginger tea, to drugs whose names are legion, some conforming to rule and being harmless, some disregarding the rule and being extremely harmful, as coal tar products, opium and morphine.

Radical treatment was to dilate the cervix and apply a pessary; the dilation to allow the free passage of any exfoliated membrane and the pessary to correct any displacement.

Marriage was often advised as it was thought that childbearing would relieve the trouble.

No new light was thrown upon this condition until Ochsner called attention to the appendiculo-ovarian ligament of Clado and its relation to the right ovary and the possibilities of an extension of inflammation from the appendix to the right ovary and tube.

The appendiculo-ovarian ligament of Clado is a fold of peritoneum extending from the appendix to the right ovary. This fold of peritoneum contains the appendiculo-ovarian artery, which forms a direct anastamosis between the vessels of the ovary and those supplying the appendix. The lymphatic vessels in the ligament of Clado connect the appendicular and ovarian lymphatic systems. This ligament is present in ten per cent of females (Clado).

The close anatomical relationship between these two organs renders the right ovary liable to infection from even a mild attack of appendicitis through the medium of the ligament of Clado. The direct communication of the inner coats of the appendix with the lymphatic channels makes an extension of infection without perforation easy.

A series of attacks of appendicitis, even though mild, may be sufficient to cause a chronic inflammation of the right ovary or of its peritoneal covering. A thickening of this membrane prevents the rupture of the Graafian follicles and causes the formation, as each follicle ripens,

of a small cyst. As these cysts increase in number they may either remain single or coalesce and form one large cyst. In either case there is an enlargement and increase in weight of the right ovary which then naturally tends to descend into the culdesac of Douglas. This is the ovary which the older gynecologists so often discovered in their examination of the pelvis in patients suffering from dysmenorrhea.

Infection of the right ovary and tube may also occur by direct extension from either a rupture of the appendix with the liberation of infectious material which will gravitate to this region or where the appendix is long and the cecum very mobile the tip of the appendix, which is most often the seat of inflammation, may touch the right ovary, or even be firmly attached to this organ, as the writer has often seen.

Should there be a leakage of infectious material from the appendix, and there always is when it is inflamed, some of it may pass into the right Fallopian tube and into the uterus, setting up, on its way down, an inflammation of these structures. This explains many cases of endometritis that cannot be traced to upward extension of infection. Surely many of the cases of endometritis with leucorrhea and painful menstruation, mentioned by the older writers, was due to this cause.

Once the ovary becomes diseased its internal secretion, which governs menstruation, becomes perverted and there may be excessive loss of blood at the time of the periods as well as other manifestations of disordered menstruation.

Every surgeon has been surprised at finding, in young females, the right ovary more frequently diseased than the left. A diseased appendix is usually found when operating for the removal of a cystic right ovary. Personally, I have never removed a diseased right ovary without finding the appendix either actively diseased or showing, by its obliterated extremity or appendiceal adhesions, signs of a previous inflammation.

When a girl has her first attack of dysmenorrhea or, as I would rather call it, belly pain, we should suspect appendicitis, make a careful physical examination and get a leucocyte and differential count. A rise in the leucocyte count and in the percentage of polynuclears would suggest appendicitis.

I do not mean to claim that in every attack of recurrent appendicitis you have an increase in the leucocyte count and rise in the percentage of polynuclears, but if you do have it, the diagnosis would be established. After one or more attacks of acute inflammation the appendix will tuck its tail like an abused dog and adhesions will form—one of nature's efforts to limit the trouble. In such cases there may be colic-like pain from the appendix without an increase in the leucocyte count.

The question naturally arises, "Why do such patients have abdomi-

nal pain at the beginning of the menstrual period if it is due to recurrent appendicitis? The explanation is simple: In the premenstrual period there is a congestion of the pelvic organs which reaches its greatest intensity at the beginning of the menstrual flow. The appendiculo-ovarian artery which forms an anastamosis between the appendicular and utero-ovarian vessels, when the ligament of Clado is present, makes a congestion of one part likely to set up a like condition in the other. An appendix which has gone through several attacks is like a sleeping dog, easily aroused, and the slight congestion incident to menstruation is sufficient to set up a recurrent attack which manifests itself by cramp-like pains. These pains become less and less as the flow is established and the congestion of the pelvic organs subside.

In such cases the similarity of symptoms are so pronounced that in a composite history record the salient features would stand out in clear and unclouded lines. These symptoms, differing in minor detail—usually in intensity—are as follows: nervousness; indigestion, flatulence; constipation; headache; painful menstruation; pain in the right side, more pronounced just before and at the beginning of flow, but also felt between periods; profuse and prolonged flow. These patients will tell you they have never suffered a severe attack of belly colic, pains or cramp; they may acknowledge an occasional attack of "acute indigestion"—pain, colic, nausea and emesis—but say, in explanation, "It did not amount to much and lasted only an hour or two"; or "I was all right next day." Such an admission should put us on our guard—it is not the proverbial straw that shows which way the wind blows, but a sign board at the cross roads to point the way, and he that runs may read if he will. The number and complexity of symptoms that a carefully taken history will disclose indicates plainly that a disease and not a condition confronts us.

Of one of this class of patients I wish to give my experience in detail, that I may thus bring to your attention the possible and probable evil results of an "appendicitis dysmenorrhea." This patient had all the usual symptoms and complaints, particularly menorrhagia. Examination under ether disclosed an enlarged cystic right ovary. So that there was present cystic right ovary, endometritis, painful menstruation and severe bleeding at the time of the periods.

Operation disclosed a badly adherent appendix, showing the effects of many previous attacks. This, together with the cystic right ovary, was removed. The patient make an uneventful recovery.

For twelve months afterwards the periods were normal and she was entirely free from menorrhagia and dysmenorrhea. Then the patient began to have attacks of menorrhagia which were serious enough to de-

mand a second examination. A cystic left ovary was found. At a second operation the left tube and ovary were removed, and again the patient made a good recovery. Since then she has had no further trouble.

In such cases I believe the origin of the trouble was in the appendix. From the appendix the infection extended to the right ovary. Later an endometritis developed probably from the same focus of infection. The inflammation of the right ovary led to a thickening of its outer covering with the consequent retention of the Graafian follicles as they ripened and the formation of a cystic ovary, with its perverted internal secretion. This in turn caused the excessive bleeding at the time of the periods. After the ovary and appendix were removed all the symptoms disappeared for a year. The reappearance of the menorrhagia was due to cystic degeneration of the left ovary from what I believe to be an extension of infection from the endometrium by way of the left Fallopian tube to the left ovary.

If, in these cases, had the appendix been removed at the first attack I believe these young women would have had no trouble with the ovaries, no further dysmenorrhea, and their full procreative powers would have been preserved.

I have operated upon 196 young women who came in for relief from the pangs of dysmenorrhea, but whose condition was the result of appendicitis. Of these, 166 gave a history, before operation, of painful menstruation. A careful examination disclosed a diseased appendix. A simple appendectomy completely relieved the dysmenorrhea in practically all the cases.

Thirty of the 196 patients that had given a history of painful menstruation were found to have diseased right ovaries which were removed. In these cases the left ovaries were apparently normal.

CONCLUSIONS.

1. The extraordinary number of articles which have appeared on this subject, the varied and various classifications proposed, the unlimited and unending list of remedies recommended therefor, all tend to show that in many instances the *symptom* dysmenorrhea is mistaken for the *disease*, the shadow taken for the substance, the effect for the cause.

2. Therefore must we be the more guarded in dealing with this perplexing problem. We must in every way possible protect ourselves from the danger of jumping to conclusions on very slim evidence or allowing our patients to thrust upon us their own erroneous diagnosis. In no other condition is the importance of a clear, concise history so aptly

demonstrated, for, taken in conjunction with the several other symptoms, such as headache, abdominal cramps and backache, dysmenorrhea itself is only a symptom, of the underlying cause for which we are, or should be, patiently and earnestly searching.

3. An early diagnosis of an offending appendix means much to the patient, the community and, incidentally, to the doctor. It may mean the rescue of an ovary from impending destruction, thereby conserving the reproductive powers of the patient and rescuing her from the long train of evils which the artificial menopause will bring. For the doctor, the satisfaction that a perplexing problem correctly solved, a difficult task successfully worked out, will bring.

DISCUSSION.

Dr. Burrus: I have been anxiously waiting for someone to tell me how to cure dysmenorrhea. I appreciated this paper very much indeed. I have cases after cases, and I do everything I can do for the poor women. They go along and continue to have pains when menstruating. I wonder if we yet have anything upon which we can rely as a treatment of dysmenorrhea. I believe he is quite correct, that we do not take the time to search out the factors of dysmenorrhea is evident. I operated a few cases of appendicitis, cases in which the patient would suffer intensely at the menstrual time, and after having been driven to the removal of this appendix, then the symptoms of dysmenorrhea would subside.

I thank Dr. Long for this paper and I shall endeavor to try it out.

Dr. Lawrence: I can add very little to the discussion. I think dysmenorrhea may be divided into two types, viz.: The obstructive type and the type due to infection, the obstructive type, we are all quite familiar with. As to the infective type, I think the infection may come from any organ in the body. Infections of the kidney, ureter, gall bladder, as well as the appendix, will often cause trouble with the pelvic adnexa.

I think the work of Rosenow and others have shed new light on the subject of infections, and as a result of their work I believe something in the way of treatment. that we have not thought of before, will be brought out to help this class of cases. I enjoyed the paper very much. I don't agree with the statement, entirely, that dysmenorrhea is due to appendicitis. It may be the cause in some cases, but I have seen a great many cases operated for appendicitis that certainly were not relieved of the dysmenorrhea. The foci of infection may be demonstrated in other organs as well as the appendix.

Dr. Royster: Clinical classification of dysmenorrhea may be settled as far as the type is concerned: (a) The anteflexion type, in which the pain comes on a few hours or a few days before the flow and remains until the flow is free; (b) the tubal type, which comes on a week before the flow and lasts until the flow is over; (c) the uterine or ovarian type, which comes with the flow and remains after it is over.

These types of cases are not dependable upon general causes, but general causes must always be taken into account. The nerve element, the habit element, the question of improper mode of life, the condition of the blood-making organs—all these things must be taken into consideration. If we leave out those things we are not going to cure the patients in many cases. But we have eliminated those things, I think, with the three classes I have given. We say that dysmenorrhea is a symptom, just as a cough, and that is correct. In many cases we cannot find the cause. If we can't find the cause we may search around a long time before we can cure it. Most of the cases which exist do have physical causes. To find those we must search the pelvis first, and then get outside of that to the whole system. To say this would cover every case of chronic appendicitis, will not overcome the difficulty, nor will it be in line with reason or experience.

I am satisfied, however, there is some association between the appendix and conditions in the pelvis. I recollect two cases of dysmenorrhea in both of which we found the appendix adherent to right ovary and tube.

I am satisfied that conditions of the right ovary, so-called cystic enlargement of the ovary, with or without adhesions, may contribute to painful periods. We will not assume, however, that all of this is causative; it may be accidental or incidental. I feel pretty sure that the ovary is not as painful an organ as we believe it to be. In many or most cases of dysmenorrhea, the ovaries are perfectly normal. The worst cases we come across are in young women that have anteflexion. The tube is a much more important organ than the ovary, as far as pain is concerned. The tube is deficient in its blood supply, and is the narrowest part of the genital tract from the vulva to the ovary. It is most often the seat of infection. I do not think that the essayist means to say that all cases of dysmenorrhea are due to chronic appendicitis, and that to cure the pain the appendix must be taken out.

Dr. Long: We all know that a young girl's uterus, when it is entirely healthy, is too small and light for any position it happens to be in to make any difference. Dysmonorrhea is due to endometritis, and you never have that unless the uterus has been infected in some way. We

often have girls starting their menstrual life with pain; but, if you will get a painstaking history, you will find that they had belly pain before menstruation was established, showing that appendicitis existed prior to menstruation, and that they began to menstruate with a uterus already defective from the above causes. When the appendix is removed do not fail to examine the pelvis.

THE DIAGNOSTIC VALUE OF THE RONTGEN RAY IN SURGERY.

J. W. Squires, M.D., Charlotte, N. C.

The cure and prevention of cancer of the stomach, like cancer of any other part of the body, can only be accomplished by an early diagnosis and removal of the predisposing causes. One writer has aptly said that among physicians there is no lack of knowledge concerning cancer, but rather a lack of examination. We can add that there is no lack of means of curing early cancer, but a lack of proper application of the means. Bloodgood says if one is to have an operation, why not have it in time; fear the beginning and not the end, because this fear will induce us to undergo an operation early.

Another writer says, "How fortunate it is that there have recently been such additions, etc., to our diagnostic methods. The X-ray has added enormously to our ability to see into the hidden recesses of the body." It has reformed diagnostic methods and replaced speculation with facts. For instance, in cancer of the stomach we can make, largely by the X-ray, an early diagnosis in 93 per cent of the cases. This being true, why is it that the X-ray is utilized so little in the diagnosis of stomach diseases? Why is it that the Röntgenologist does not have a chance at these patients until, in nearly every instance, the growth has progressed so far that it is inoperable? It is because of our lack of offensive, not taking the initiative when the patient's vitality is still good and when the process is in the precancerous stage. By a thorough examination, both clinically and with the Röntgen ray, the diagnosis could be made early and as positive a diagnosis as if we had waited until the classical symptoms of cancer appeared.

The remark is frequently made that surgical exploration is the only means of making an early diagnosis of cancer. But this is a very para-

doxical statement, as such a procedure would eliminate the possibility of an early diagnosis because patients will not consent to an exploratory laparotomy until the symptoms are pronounced, and then the process has passed beyond the incipient stage. If we hesitate to make a diagnosis until the classical symptoms of vomitus of coffee ground material, loss of weight and cachexia appear, the life of the patient will be sacrificed. But if we utilize the X-ray, the diagnosis of a surgical condition can be made in the incipient or even in the precancerous stage. Patients will gladly submit to a Röntgen ray examination when their symptoms are only slight, but would absolutely refuse an exploratory laparotomy.

When a patient presents himself for a Röntgen ray examination of the gastro-intestinal tract, it is the writer's custom to systematically examine all organs of the body to which the Röntgen ray gives access, utilizing both the Röntgen ray picture and fluoroscopic observations of the part.

At this point I wish to emphasize the fact that no X-ray department is complete without a fluoroscopic equipment. I say this by way of explanation, since so many physicians attempt to make an X-Ray examination without fluoroscopic facilities. And at this time, I, also, wish to pay my respects to the physician who poses as a Röntgenologist and also professes to be a surgeon, obstetrician, pathologist, and bacteriologist. Possibly he may be able to say when a bone is fractured, but that is all. When he attempts to use the X-ray for gastro-intestinal diagnosis or other complicated investigations, he is the man who brings X-ray work into disrepute and gives the medical profession an erroneous impression of this most valuable diagnostic agent.

In the routine Röntgen ray examination of the gastro-intestinal tract, the gall-bladder is first investigated, then the chest and esophagus. Immediately following this the stomach and intestines are observed closely by a considerable number of Röntgenograms, seventy grams of barium sulphate in two glasses buttermilk being used as a test meal. Fluoroscopic observations of the digestive tract are particularly important, and as many observations are made at various intervals as is deemed necessary. Following this technique, a most thorough examination is obtained and the facts thus ascertained compared with the clinical findings give us the most accurate data concerning the digestive system that can be obtained. If nothing is found abnormal, the patient has at least had a most thorough and exacting examination, and it should be a source of satisfaction to the patient to know that he is in excellent condition. An ounce of prevention is worth a pound of cure.

In the Röntgen ray examination of the stomach it is necessary to examine the entire gastro-intestinal tract, and even other organs of the

body, because there are so many factors outside the stomach that produce reflex disturbances of this part. Gall stones, cholocystitis, ileocecal adhesions, appendicitis and various other pathological conditions enter into the production of gastric symptoms. And the X-ray is indispensable in differentiating these conditions.

The lesions of the stomach that the Röntgen ray is most valuable in diagnosing are gastric ulcer and cancer. The detection of these is dependent upon the deformities in the contour of the stomach. The serial Röntgenograms the pathology most clearly.

In gastric ulcer the Röntgen ray signs are as follows:

1. Permanent irregularities in the contour of the stomach or cap, *i. e.*, the bismuth-filled crater of an ulcer or deformities due to indurated areas or adhesions.
2. Interruption of peristaltic contractions.
3. Incisura.
4. Locating pain directly over defect. This sign, as in gastric carcinoma, is observed during the fluoroscopic examination.

These represent the cardinal signs, but there are certain minor signs that should be noted, among which are hyperperistalsis, hypermotility, and spasm of pylorus with delayed emptying time.

In gastric cancer the Röntgen ray signs are as follows:

1. Filling defects.
2. Absence of peristalsis in part involved.
3. Mobility.
4. Superimposing test.
5. Dull pain at site of filling defect. This sign is observed during the fluoroscopic examination.
6. Changes in pylorus, which may be gaping or obstructed.
7. Residue in some cases.
8. Advanced position of opaque meal; in six hours, the barium being in the transverse or descending colon.

The differential Röntgen ray points between gastric ulcer, cancer and syphilis of the stomach are mainly in the appearance of the filling defects, mobility and incisura. Also I wish to emphasize that the Wassermann reaction should be employed in every case in differentiating any of these lesions.

In conclusion, I will say that my object in presenting this paper is not to present new facts, but simply to emphasize the old fact that it is our duty to examine our patients most thoroughly and systematically, both chemically and with the Röntgen ray, in order to diagnose their complaints while still in a curable stage. The physician who does this will be regarded, both by his colleagues and patients, as a most valuable man in his community.

DISCUSSION.

Dr. John Wesley Long, Greensboro: Before we go I want to say that the surgical section is fortunate in being able to have on tomorrow one of the surgeons from New York Polyclinic. He will demonstrate by moving pictures the technique and methods of operations employed at the Polyclinic.

These papers and X-ray illustrations of both Dr. Dodson and Dr. Squires are fine illustrations of what our North Carolina men are doing. It gives me pleasure to see their work. Both men are specialists—do only X-ray work. We ought to give them hearty support along these lines. No surgeon can claim to be thoroughly equipped unless he has an X-ray laboratory of his own or is in touch with a man who does X-ray work. The surgical section will be opened this evening by the lecture of Dr. Mayo. I want to say before he begins that following his lecture we will continue the surgical program until it is finished or until a late hour. That the surgical section has a great many good things to offer you this year, and one that perhaps you don't know about will be explained by the following telegram:

Dr. William B. Giles of our staff, sent by the Polyclinic to the war zone in France to secure the latest valuable and interesting features of military surgery for us in teaching at the Polyclinic, will represent us at your meeting with lantern-slide illustration and practical demonstration of apparatus and methods in use by Blake and others in France. Give him an evening and he will prove an exceedingly interesting feature.

(Signed) John A. Wyeth,
New York City.

He speaks here of lantern slide illustrations, but I understand it is largely moving pictures.

We will now do ourselves the honor of hearing Dr. Mayo.

Dr. William J. Mayo: I first wish to thank the North Carolina Medical Association for their kind and cordial reception.

SOME INDICATIONS FOR THE REMOVAL OF THE SPLEEN.

William J. Mayo, M.D., Rochester, Minn.

The early history of splenectomy pictures the operation as confined to meeting a few well defined indications. Of these, traumatism, spontaneous rupture and torsion of a movable spleen with a long pedicle were the most common.

Tumors, while rare, lead to an occasional operation, usually under a mistaken diagnosis. The most common variety of tumor, as shown by Powers[1] is cystic disease, usually the result of subcapsular hemorrhage into the spleen of the same nature as those spontaneous ruptures which lead to an emergency operation or a fatal hemorrhage.

Reports of splenectomy for primary new growths have been rare. We had one lymphosarcoma in which, after the removal of a huge spleen, the patient remained well for seven years and then died from metastasis.

Infections. Tuberculosis apparently confined to the spleen and, so far as can be shown, primary in the spleen, giving rise to splenomegalia, has occasionally been reported, but the majority of observers believe that tuberculosis is never primary in the spleen. We have done two splenectomies for this condition; the first patient died some months from general miliary tuberculosis; the second, a girl of sixteen with tuberculous spleen and a tuberculous peritonitis confined to the splenic area, made a good recovery, but the time since operation is too short to conclude that the patient has been cured.

The malarial spleen has occasionally been removed when greatly enlarged, Jonnesco[2] reporting a number of such cases operated on as long as fifteen years ago with gratifying results, but the mortality was high, the spleen usually being very adherent. Better means of treating malarial splenomegalia have reduced the necessity for splenectomy in this condition to a minimum.

Syphilitic splenomegalia is an interesting condition and, in the chronic state, produces an anemia out of proportion to the other evidence of syphilis. We have removed the enlarged spleen in three patients in connection with syphilis, in whom the anemia persisted in spite of thorough specific treatment. All had a positive Wassermann reaction. It was remarkable how rapidly the anemia disappeared, the blood becoming normal within a couple of weeks following the removal of the spleen. Specific treatment was then undertaken with immediate success. In these cases gummata existed in the liver and small gummata were present in one of the spleens, but all the spleens contained the spirochete.

Anemias. Banti's investigations showed that the enlarged spleen was responsible for the anemia in a group of cases which he named splenic anemia, and the good effects of splenectomy in these cases stimulated investigation as to the pathologic relation of the spleen to other forms of anemia, such as primary anemia of the pernicious type and hemolytic jaundice. The results of splenectomy in at least splenic anemia and hemolytic jaundice have been remarkably good and great improvement has been manifested in many cases of pernicious anemia following splenectomy. It seems wise, therefore, to review somewhat in detail the relation of the spleen to the anemias and the indications for its removal.

The spleen and liver are closely associated in function. The liver is essential to life, the spleen is not. The liver acts as a gigantic means of defense against poisons, both parasitic and chemical, which would otherwise reach the general circulation from the gastro-intestinal tract through the radicals of the portal vein. This is well shown in cancer of the rectum and intestine, which, through the portal circulation, often develops embolic processes in the liver, though seldom in the lung. Cancer of the stomach, on the other hand, by reason of direct communications with the general circulation through the diaphragm, as well as through the portal vein, frequently develops secondary cancer in the lungs as well as in the liver.

The splenic artery arises from the celiac axis, the same source which supplies the pyloric end of the stomach and upper duodenum, the liver and pancreas, all of which are derivatives of the foregut, and all organs concerned in the proper preparation of food-products for digestion and absorption, as in them also the venous return of the spleen becomes part of the portal circulation. The vascular system of the spleen is large and is curiously arranged, inasmuch as the walls of the blood vessels, except the endothelial lining, are absent and the blood comes in direct contact with the splenic pulp.

The spleen contains a considerable amount of non-striated muscle fiber and elastic tissue, but only a very scanty supply of nerve tissue, and that largely from the sympathetic. The researches of Kieth[3] show the nodal cell control of non-striated muscle and are helpful in elucidating problems connected with the physiology of the spleen. Every organ of important internal secretion is very closely, if not organically associated with sympathetic nerve tissue. Note the adrenals and hypophysis, part glandular and part sympathetic ganglia. This close relationship of glandular secretion with the sympathetic nervous system enables widespread effect, so that the internal secretions may be said to play on the sympathetic nervous system as the fingers play on a piano. The

scanty nerve supply of the spleen shows that it does not produce an important internal secretion. Its function must be closely associated with metabolism, shown by enlargement during the digestive period and contraction following digestion. That these physical changes are brought about through the effect of some product contained in the blood stream acting upon the non-striated splenic muscle seems assured, since epinephrin solution in the circulation will cause the spleen to contract one-third in size, as noted by Elliott and Kanavel.[4]

The idea that the spleen is an obsolete organ of little function is not tenable, as Eccles[5] has pointed out. The outstanding fact in a retrogressing organ is the reduced blood supply. The tonsils, for example, were at one time supposed to be retrogressive, but the fact that the tonsil has five sources of blood supply shows that it is not obsolescent, yet it is not essential to life, and when diseased has great potentiality for harm. This is quite analogus to the spleen.

It would appear that the spleen removes from the circulation not only cellular elements of definite food value, but also parasitic and chemical poisons, and, when unable to properly care for these products, sends them to the liver for elaboration into energy-producing substances, on the one hand, and destruction of various toxic agents on the other, that nothing of value may be eliminated and that dangerous products, wherever produced, may be rendered harmless.

The relation of all animal life to food supply is of first importance. It is a trite saying that nature abhors waste. The amount of energy nature can produce in the living with a limited amount of food has no imitators in man's handiwork. One must confess that whatever his mental and moral deficiencies, and they are certainly great, as a machine man has no equal. The degenerated cellular elements from the blood and even the food value of ingested parasites are conserved. It has been shown that the phagocytes of the body depend, to a considerable extent, on ingested bacteria for their nutrition. Hiss[6]. Stohrs and Adami[7] have shown that the leukocytes of the body pass out on the free surface of the intestine and return loaded with bacteria and particles of fat, and that the pigmented areas of the liver are derived from the coloring matter of slaughtered bacteria. In the same manner the fluids of the intestinal tract are redistilled in the proximal colon after being used mechanically to float the food products down the small intestine and, that nothing may be wasted, bring them in contact with the valvulæ conniventes, which are to man what roots are to a tree.

The close association of cirrhosis of the liver with enlargements of the spleen has long been noted. In primary cirrhosis of the liver the spleen is enlarged and in splenic anemia with splenomegalia the terminal

stage shows cirrhosis of the liver. In some cases, much difficulty is experienced in determining whether the hepatic cirrhosis is primary and the splenomegalia secondary, or the contrary. Nearly thirty years ago Gregory[8] rather picturesquely stated that nature had three ways of protecting the organism against noxious agents: First, by absorption, destruction and elimination through natural processes; second, by encapsulation of such harmful substances as it was unable completely to destroy or eliminate, of which the encysted bullet is a gross example; and third, by extrusion, as in the spontaneous opening and discharge of infective organisms in phlegmons. It would seem probable that in cirrhosis of the liver the second of these methods was in operation. It has been suggested that in chronic alcoholism, for example, the liver, finally unable to destroy and eliminate, attempts to encapsulate a diffuse poison, and that the contraction of this scar tissue produces the cirrhosis. But cirrhosis of the liver is by no means confined to alcoholics. It is often seen in comparatively young people, and those who have never used alcohol. It probably would not be far wrong to say that certain toxic substances circulating in the blood may be gathered into the spleen and sent thence to the liver for destruction, and that chronic hepatic insufficiency might eventually lead to the production of cirrhosis of the liver, on one hand, and, on the other, show its effect on the spleen as a splenomegalia with resulting anemia, as, no matter what the cause of the splenic hypertrophy may be, an increased capacity for destruction of the red cells seems liable to develop.

Certain it is that the removal of the spleen has been of very great benefit in some cases of cirrhosis of the liver of both the biliary and portal types. These experiences, however, have been too recent to enable any conclusion to be drawn, but among the group of splenic anemias in which a greatly enlarged spleen has been removed and cirrhosis of the liver was present with ascites, etc., patients have been apparently cured, and the cures have now lasted long enough to enable us to say that at least the cause of a progressive and heretofore fatal malady has been removed. We could not expect a cirrhosed liver to return to normal, but the progress of the cirrhotic process has been interrupted and the remaining hepatic tissue has been sufficient to carry on function.

If we accept the idea that the spleen removes from the blood noxious agents, are we to conclude that all the circulatory blood must go through the spleen for this purpose, or is there an attraction between organs and the arterial supply of the body, that is, do certain organs definitely attract substances circulating in the blood? Rosenow[9] has shown, for example, that the streptococci cultured in the gall-bladder are definitely attracted to the gall-bladders of experimental animals when injected into

the circulation. This is also equally true of other organs—the appendix, the stomach, etc., so that he has been able to produce definite infections of organs with injections of bacteria properly cultured.

The spleen is found in all red-blooded animals. The ancestral blood corpuscle, from which both red and white have their origin, is probably the mesenchyme cell, a form of lymphocyte which appears first in the fetal blood. The most primitive blood is therefore white blood. This is found in the fetus before the red blood appears. All animals that have only one kind of blood have white blood. As the scale of animal life ascends, red blood begins to appear and nearly all the conditions of the blood of the different anemias is the normal blood of some of the lower animals. In fetal life all of the lymphoid and adenoid structures of the body, the bone marrow, the spleen and in its early stage, probably also the liver, are blood-forming organs. The liver loses this function long before birth. In leukemia, all of these primitive organs, including the spleen and liver, for some unknown reason, begin to produce embryonic white blood, just as in cancer there is an unlimited production of embryonic epithelial cells, and in sarcoma of embryonic connective tissue cells. After birth, the spleen continues to produce a certain number of leukocytes, as shown by the fact that the splenic vein contains a higher percentage of leukocytes than the other veins of the body, but does not produce erythrocytes.

It has also been definitely shown that worn out red corpuscles are strained out in the spleen and destroyed; thus the splenic vein contains a higher percentage of hematin than other veins of the body. In disease we may surmise that excess of splenic function destroys red corpuscles which are not worn out and the condition becomes one which we speak of as splenic anemia or hypersplenism, and that the rare condition of excess of red cells in the blood called polycythemia may be due to deficiency of function of the spleen and associated organs—a hyposplenism.[10] This explanation, however, is undoubtedly too simple and does not take into account the possibility of the spleen interfering in some unknown manner with the production of red cells in the bone marrow. It is more probable, however, that in certain conditions of disease red cells are sensitized in other tissues, as shown by the increased fragility of the red cells (Chauffard[11] and Widal[12]), and are then destroyed in the spleen. Since, when the spleen is removed in cases of splenic anemia, pernicious anemia and in hemolytic jaundice, it is found crowded with disorganized erythrocytes, this hypothesis seems the more logical.

Of great significance is the knowledge that the spleen and possibly other organs of themselves not necessary to life, may be *the* link easily broken in an otherwise fatal chain. From the fact that the spleen is

not necessary to life and yet that its removal may definitely check certain hopelessly progressive blood dyscrasias, one must conclude that the spleen is not the cause but rather the agent of destruction, as in hemolytic jaundice, and, that when the spleen is removed the noxious substances are rendered innocuous elsewhere under more favorable conditions, although what becomes of these toxic agents after the spleen is removed, we have as yet no means of knowing. Be this as it may, clinical experience has definitely shown that many of those anemias primarily associated with an enlarged spleen and secondarily with cirrhosis of the liver are definitely cured by removal of the spleen.

Splenic anemia. The group called the splenic anemias shows a definite clinical picture; secondary anemia, leukopenia, enlarged spleen, hemorrhage from the stomach, and, in the late stages, the characteristics described by Banti[13]—cirrhosis of the liver, ascites, etc., a disease most common in young adults. Children, however, are not infrequently subject to the disease of the adult type, and it is possible that the "pseudolukemic anemia" of infants or Von Jaksch's disease is also a manifestation of the same condition (Giffin[14]). In Von Jaksch's disease there is a leukocytosis which is chiefly a lymphocytosis together with a diminution of erythrocytes, a large spleen and cachexia. In this condition infants, for physiologic reasons, usually show an excess of leukocytes up to 30,000 or more, older children more often developing the condition seen in adults with leukopenia, but even in adults the leukocytes may be in excess in otherwise typical cases of splenic anemia.

In our clinic 102 splenectomies have been performed. Thirty-four were in cases of definite splenic anemia. All the patients recovering from the operation, with five exceptions, have remained quite well in spite of the fact that some were in the late stages of the disease, that is, markedly advanced hepatic cirrhosis, ascites, and jaundice (Giffin[15]).

Hemolytic jaundice. That hemolytic jaundice, in the great majority of cases, is due to hypersplenism may now be accepted. Whether the spleen is acting on its own initiative or through stimulation of the blood in destroying the red cells, we have at present no definite knowledge.

Seven patients with hemolytic jaundice have been operated on.

None of these cases was of the familial type, though all had begun in childhood. In this condition there is bile in the stool, absence of itching of the skin and freedom from all symptoms of obstructive jaundice. Usually there is increased fragility of the red cells and an excess of urobilin and urobilinogen in the urine but no bilirubin. Exacerbations are often preceded by typical crises somewhat resembling gall-stone colic, with increased temperature, malaise, headache, loss of appetite and an increase of the jaundice. During the crisis the spleen is enlarged

and tender. In three of our patients, two under 20 years of age, gallstones were present. The improvement after splenectomy was a most remarkable phenomenon. The jaundice began to clear within twenty-four hours following the operation and in four days had completely disappeared, with complete restoration of well-being.

There have been attempts, more or less successful, to demonstrate essential differences between the familial hemolytic jaundice of Minkowski[16] and the acquired disease of Hayem[17] and Widal[12]. Chauffard[11] says that in the congenital type the disease shows itself more or less distinctly from birth, and the patients are "more icteric than sick," while the acquired type begins in adolescence and the patient is "more sick than iteric." The congenital type may last for a lifetime with the patient in fair health; the acquired type is progressive and leads to death through anemia and its complications.

There is a remarkable similarity between cirrhosis of the liver with enlargement of the spleen and splenomegalia with with cirrhosis of the liver. Just so are we impressed by the similarity between acquired hemolytic jaundice and biliary cirrhosis of the Hanot type. Both are more common in young adults and are more or less chronic in their course, the patients with hemolytic jaundice frequently living out a life expectancy, and those with Hanot's cirrhosis lasting from four to ten years. Both have enlarged spleens accompanied by jaundice, often slight, but with exacerbations; both may have crises marked by pain in the region of the liver, and in both ascites is usually absent. There can be no question but these two diseases were often held confused.

Pernicious anemia. It has been known for many years that pernicious anemia is often accompanied by a large spleen. Eppinger[18] first pointed out that after the spleen was removed, in pernicious anemia, an extraordinary improvement in the condition of the blood was usually noted, and experience has borne out Eppinger's observations.

It is true that the spinal cord changes in pernicious anemia have not been benefitted by splenectomy, and they have even progressed after splenectomy in spite of the general improvement of the patient. Also the blood in the splenectomized, so far observed, did not entirely lose the characteristic pernicious cells, nor could we expect it to do so. We cannot expect the operation to overcome structural changes in organs which have been permanently damaged, and up to the present time the only cases which have been subjected to operation have been largely those in advanced stages of disease. Experience shows that splenectomy should be resorted to early, and in these cases cure may at least be hoped for. The spleen has been removed in thirty-two of our cases of pernicious anemia (April 1, 1916). The improvement in some of

these cases has been remarkable, but not enough time has yet elapsed to warrant any definite statements being made. It would appear that in pernicious anemia two factors were co-responsible for the blood changes: first, a blood destruction, probably largely splenic; second, a vitiated blood production, due to change in the bone marrow; sometimes one factor predominates; sometimes the other is responsible.

In reviewing the basic facts of splenic anemia, hemolytic jaundice and pernicious anemia, the one fact that stands out is that there is a destruction of the red blood cells and that this hemolytic change is accompanied by physical changes in the spleen. It is interesting in this connection that in sixteen of the 102 cases of splenectomy in our clinic gall-stones were found, and all were in the groups of anemias.

One is impressed with the fact that the surgery of the next generation will approach more nearly the physiologic type in contradistinction to the gross pathologic conditions which constituted the chief share of the surgery of the past generation, and one can look forward to the time when many of the chronic diseases now but little influenced by treatment will have surgical aid, especially those widespread changes which are brought about through the ductless glands, of which hyperthyroidism and hypersplenism are examples.

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Dr. Highsmith, Fayetteville: We certainly thank Dr. Mayo for his splendid paper.

A PLEA FOR RECOGNITION AND RELIEF OF INTESTINAL OBSTRUCTION.

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My experience in dealing with intestinal obstruction has been that the condition is frequently not recognized by the family physician early in the case, and not until after complications have arisen, and in many instances, irreparable damage has been done.

The object of this paper is to bring out a discussion that will freshen our memories on this all important subject.

Clinically, we divide the cases of intestinal obstruction into acute, subacute, and chronic. And in the subacute and chronic varieties, we recognize a complete and an incomplete obstruction. For in some cases a small amount of material is able to pass by the seat of obstruction.

Various conditions are responsible for intestinal obstruction. I will refer to some of them briefly, viz.:

First. Paralysis of the bowel may be caused by peritonitis, compression in a strangulated hernia, or by a severe blow over the abdomen. The paralysis may be general or limited to a small loop of bowel.

Second. Internal hernia through a natural aperture in the peritoneum, such as the foramen of Winslow. Strangulation may also take place through abnormal openings formed by adhesions or bands.

Third. Diverticula, especially Meckel's diverticulum in the ileum, may interfere with the movements of the bowel, as do the peritoneal bands, by forming adhesions and dragging on the bowel or binding it down or even surrounding it like a cord.

Fourth. Stricture, as we understand, is a reduction in the lumen of the bowel by various causes. The narrowing may be congenital, it may be cicatricial, or a tumor in the lumen of the bowel, or a pressing without.

Fifth. Volvulus, which occurs four times as often in males as in females, and appears to be more common in certain races, for example, Russians, is a twisting of any part of large or small bowel with a long

mesentery. The twisted loop is free in the centre, but its ends are closed by the rotation, and when the blood supply is cut off in the mesentery by the rotation, gangrene results.

Sixth. Fecal impactions are most frequently found in the rectum, sigmoid, or cecum, and in severe cases the entire large bowel may become distended with feces.

Seventh. Gall-stones and foreign bodies entering the bowel may cause obstruction. Obstruction has been caused in children by round worms.

Eighth. Intussusception occurs in both large and small bowel, but is most frequent at the ileo-cecal valve. It is frequently found after death in children who have died of nervous or intestinal diseases. In such cases, the intussusception is frequently directed upward against the normal peristaltic movement, whereas, in life we find the apex of the intussusception always directed toward the anus, a point to be remembered in making post mortems.

The diagnosis of the various kinds of obstruction must be made from the clinical history with the local examination. It is essential to determine whether strangulation is present, and with the presence of the acute pain and associated uncontrolable vomiting, which rapidly becomes fecal, no mistake should be made of this condition.

Acute peritonitis, caused by perforation, may resemble strangulation, but in the peritonitis, you will have a more generalized, steady pain, the great abdominal tenderness, and the rise of temperature following the acute collapse.

Subacute obstruction is most frequently seen as the result of foreign bodies, of stricture, of adhesions, bands, or apertures.

Thrombosis of the mesenteric veins and acute inflammation of the pancreas may also resemble obstruction. A perforated appendix often causes intestinal obstruction. The inflammatory paralysis of the bowel is from a mechanical effect of adhesions about the appendix, but the local symptoms should overshadow those of obstruction. I have seen an acute obstruction suddenly develop upon a chronic condition; a malignant stricture of the large intestine has been known to occasion no symptoms until it becomes so small as to be blocked by an apple seed, causing acute obstruction with a fatal result.

Acute intussusception occurs in children under 10 years of age in 50 per cent of the cases, and a majority of the 50 per cent are under three years of age. In intussusception, tympanites is rare at first. A tumor will generally be felt in the iliac regions, sometimes to the right side, higher up. There is frequently a history of the administration of purgatives or of a colic. Most frequently constipation is present at

first, but there may be a diarrhea, soon followed by frequent passages of mucus and blood, with tenesmus, a sausage-like mass, when in the large bowel can be felt, more or less fixed, but is movable in the small. A rectal examination sometimes reveals the apex of the intussusception, and occasionally it protrudes from the anus. Vomiting is usually present, which becomes fecal early.

Chronic intussusception is generally felt in the rectum, in the neighborhood of the transverse colon, sometimes in the sigmoid flexure, and usually has an acute beginning.

Fecal impaction is the most common cause of chronic obstruction in women, particularly in cases of hysteria and insanity. Stomach disturbances and constipation usually precede the attack. Symptoms develop gradually, although they may become as intense as the acute variety. The mass in the distended bowel may be distinctly felt, not tender, but doughy and dull on percussion.

Strictures and adhesions present chronic symptoms, progressing steadily to complete obstruction, with fecal vomiting. The fecal vomiting in these cases is a late symptom, and the abdominal distention is often extreme.

Cicatricial stricture usually has a history of preceding intestinal inflammation. There is slowly increasing constipation in stricture due to a malignant tumor, associated with gradually increasing attacks of obstruction lasting a few days. It may also be associated with vomiting and pain; then there may be alternating constipation and diarrhea; a tumor may be detected in the malignant cases, and is generally small and rather uneven on its surface, sometimes tender to the touch; pus and blood are frequently found in the stools. In gall-stone impaction, there is usually an account of frequent gall-stone colic or an attack of local peritonitis marking the time at which the gall-stones entered the bowel. Sometimes the stone is large enough to be felt through the abdominal walls. The symptoms of these forms of obstruction are of the subacute type, fecal vomiting occurring late. Symptoms are sometimes intermittent, and gas is frequently passed per rectum.

History will give a clue to the cause of the true foreign body obstruction. Cases of obstruction with strangulation, caused by bands, diverticula, and apertures are most frequently seen in adults, and with a history of preceding hernia, peritonitis, or abdominal injury. Vomiting in these cases begins early. Constipation is absolute. Well-marked tympany does not occur for three or four days. There is an absence of rectal tenesmus or tenderness, and there may be no tumor.

In volvulus, the vomiting is not marked and is seldom fecal. Tympanites begins at first in the occluded loop. When the volvulus occurs

in the sigmoid flexure, it is generally in the male past middle age, with the history of constipation. The distension of the sigmoid may be so large in these cases as to almost fill the entire abdomen, thereby preventing the detection of any limited tumor. But as a rule, a tumor is felt between the navel and the left iliac region, with some rectal tenesmus. When the symptoms last longer than a few hours, or a few days at most, in acute obstruction the disease is said to be chronic. In simple obturation, the symptoms are almost wholly those due to the fecal current's interference. Such cases are usually due to gradual diminution of the caliber of the bowel until the fecal current can no longer pass. The appetite fails, nausea occurs, and the vomiting is first the contents of the stomach, next the duodenum, and at last the parts just above the point of obstruction. Violent peristalsis, accompanied by colicky pains and stiffening of the bowel above the obstruction, is due to spasmodic contraction of its coats. The fermentation of the retained contents of the intestines produces the gases which may enormously distend the abdomen.

A very different set of symptoms result in strangulation of an intestinal coil from that of simple occlusion. In strangulation, the onset of pain is sudden and violent and spasmodic, or colicky, associated with depression and vomiting. All efforts to move the bowels are without result, except as to the part below the point of obstruction. At first the discharges may contain feces and gas, but when the bowels are emptied that stops. The peristaltic movements of the intestines are, as a rule, not visible, as they are in partial obstruction. The shock, or collapse, is thought to be the expression of the reaction on the part of the nervous system, and this may be profound. Perspiration and diminished amount of urinal elimination is found when the obstruction is high up. It is thought that the typhoid-like symptoms are due to resorption. Crile says "that death is due to the absorption of indol and skatol, two poisonous products of fermentation." He has shown that these products are slow in their effects, and for that reason the surgeon is unable to make a favorable prognosis under twenty-four or forty-eight hours after operation. He has proven his experiment by taking the products from the loop of strangulated bowel and injecting them into healthy animals.

I will refrain from referring to the treatment of intestinal obstruction in this paper other than to say that the treatment is, in the largest per cent, early surgical intervention, as statistics have clearly shown. Out of 288 cases of ileus studied by Naunyn, recoveries by laparotomy on the first and second day amounted to 75 per cent; but on the third day only 35 to 40 per cent could be cured by operation. It is practically impossible to tabulate statistics, on account of the variety of

lesions and methods employed. In general, it may be said that in acute lesions in which operation has been performed within twenty-four hours of the onset, the prognosis is good. Beyond that time prognosis is bad. Mortality, being due to delay is diagnosis, is for the most part in cases in the hands of the general practitioner. The mortality in chronic cases for the most part depends upon the selection of cases and the skill of the operator.

REPORT OF CASES.

Case 1. Mr. N., age 34, entered the hospital suffering from an acute intestinal obstruction, with strangulation, August 29, 1915. Three days prior to entering the hospital he was seized with a sudden colicky pain, a little to the right and a little below the navel, at the outer edge of the right rectus. The family physician was called and administered a dose of calomel, to be followed by salts. In the meantime an enema was to be given, but the water was retained. The nausea and vomiting continued. The following day the family physician called again, found his patient still vomiting, abdomen distended with gas, ordered a dose of castor oil and aministered an enema himself, with no result. He made a diagnosis of peritonitis. The patient was sent to the hospital on the third day of his illness. Patient was suffering from great prostration, temperature 103, pulse 140. He was immediately carried to the operating room. A laparotomy showed that a loop of small bowel about six inches in length and gangrenous had been caught under a fibrous band, following an operation for appendicitis twelve years before. An examination of the cecum showed that he had a highly inflamed appendix, about five inches long, that was supposed to have been removed twelve years before. The operating surgeon failed to find the appendix at the time of operation, and also failed to inform the patient or his family. I am pleased to state that the original operation was not done in Asheville. I did a resection of the loop of gangrenous bowel, with an end-to-end anastomosis. The patient made an uneventful recovery, leaving the hospital October 9, 1915.

Case 2. Mr. C., age 38, seized suddenly with an acute colicky pain, with nausea and vomiting. Pain a little to the right and a little below the navel, at the outer edge of right rectus. Entered the hospital August 23, 1915, the third day of the onset of the disease. The attending physician made the original diagnosis of acute indigestion. Patient had no rise of temperature on the first day, no tympany. The morning of the third day vomiting, which had been continuous—first emptying the stomach, next the duodenum—had become fecal. Patient had a temperature of 99 in the morning, pulse 135. By the time he reached the hospital the patient was in profound shock, pulse 150, temperature 102½, mental condition cloudy, patient in extremis. He was immediately taken to the operating room and a light gas anæsthesia given, and a laparotomy revealed the fact that the entire ileum and the mesentery back and including the base of its attachment was strangulated, caused by a volvulus of the base of the mesentery, result of the ileum passing beneath Meckel's diverticula. A hurried examination showed that he was hopelessly inoperable. The patient was returned to bed and died four hours later. I am firmly of the opinion that obstruction was not complete on the first day, and that the strangulation did not occur before the end of the second day;

and I am of the opinion that an operation in the first twenty-four or forty-eight hours might have saved the patient.

Case 3. Male, 11 months old. Was taken ill early in the morning, September 1, 1913, with vomiting and straining at stools, some mucus and blood being expelled through the rectum. The family physician was called and made a diagnosis of acute intussusception. A sausage-like mass could be felt at the time of the arrival of the physician, in the neighborhood of the hepatic flexure of the colon. Soap-suds enemas, oil enemas, were administered with the hope of reducing the intussusception. In the afternoon I was called in consultation, and found the sausage-like mass over in the left side, below the splenic flexure. The child was taken immediately to the hospital, and a laparotomy revealed the fact that we had an intussusception with the small bowel passing through the colon, down to the sigmoid flexure. The intussusception was relieved. Strangulation was slight. The appendix was removed, and the child left the hospital in ten days. A year and a half later this little patient had a recurrence of the intussusception similar to the first. I was out of the city; another surgeon was called, who operated immediately and the patient recovered promptly.

Case 4. Mr. S., age 28, entered the hospital in July, 1914, with a history of having had attacks of colic, beginning in the right side, for two years. The patient was emaciated and not able to take any food except liquids. A mass could be felt in the right iliac region, in the neighborhood of the cecum, extending toward the umbilicus. He had attacks of vomiting at frequent intervals for several months. History of constipation, bowels only moving when taking large purgative doses of medicine. There was marked tympany. The peristaltic wave of the small bowel was clearly visible. Borborigmus was very distinct above the mass. After keeping the patient under observation for nearly a week an exploratory laparotomy was done, which revealed the fact that in the right iliac fossa, down to the brim of the pelvis and up the right side to near the umbilicus, was one mass of adhesions, with anastomosis between the coils of adhered intestines. A resection of four feet of the ileum was done and a side-to-side anastomosis connecting the ends of the remaining ileum. This operation was done on Friday afternoon, and on Sunday morning following patient had a bowel movement without a laxative. His bowels moved every day of the five weeks that he was in the hospital without medicine. He left the hospital at the end of five weeks, and is today working in a large logging camp in one of our western counties. He claims to have no trouble with his digestion, and says that his health is perfectly good.

The specimen that I am exhibiting in this jar is the four feet of intestine removed in this case. I think you can see the holes in the side of the bowel where the anastomosis with another coil of the bowel took place. The cause of this extensive pathology showed to be the result of an abcessed appendix resulting in a local peritonitis, forming extensive strong bands of adhesions, tying the loops of the bowels firmly together, resulting in chronic intestinal obstruction.

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THE SIGNIFICANCE OF BLADDER SYMPTOMS IN THE DIAGNOSIS OF RENAL DISEASE.

A. J. Crowell, M.D., F.A.C.S., Charlotte, N. C.

The relation of the bladder symptoms to renal disease is very similar to that of fever to infection, or gastric symptoms, to diseased conditions of the gall bladder.

No case of so-called chronic cystitis should be so regarded without first having excluded renal infection. Although chronic cystitis in the great majority of cases is due to renal infection, this is by means its only primary cause. Any bladder, prostatic, or urethral obstruction which prevents the complete elimination of the kidney secretion is a potent predisposing cause of cystitis. We usually have a chronic cystitis with such conditions, but without urinary obstruction in the male; primary chronic cystitis is of rare occurrence. We have found this quite different in the female. This is probably due to the easy route of ascending infection. Simple cystitis is much more frequent in the female, hence we have found kidney infection, due to organisms other than tubercle bacilli, much more frequent in the female.

The renal conditions which are most frequently manifested in the bladder are (1) tuberculosis, (2) pyelitis, or pyelo-nephritis, (3) lithiasis, and (4) neoplasm.

Renal Tuberculosis. It is safe to regard every case of persistent cystitis with pyuria, and especially in the young, as tuberculosis of the kidney until a thorough investigation shows it to be otherwise. An early recognition of the disease is very important in order that secondary bladder infection, which is very hard to cure, may be avoided. The earlier the diagnosis the more favorable the prognosis.

Symptoms. Practically every case of renal tuberculosis is manifested in the bladder. These manifestations are much more marked in the male than in the female. Hematuria is also less frequent in the female for the same reason—that is, complications interfering with the normal bladder function is more frequently found in the male than in the female. In tuberculosis profuse, painless hematuria is occasionally seen before the appearance of any bladder symptoms. In such cases the lesion is most certainly in the kidney and without any local kidney manifestations. At such a time, however, firm percussion over the diseased kidney will elicit pain.

The vesical symptoms predominate during the whole course of renal tuberculosis, and especially is this true in the early stages; in fact, in

its incipiency, a slight, painless, increasing frequency is the only noticeable symptom. This would not be recognized were it not for its annoyance at night. At such a time urinalysis will show a few pus cells, an occasional blood corpuscle, and possibly a trace of albumen. Cystoscopy will show a congested ureteral opening with a few small ulcers about its orifice.

Tubercle bacilli can be found in the bladder urine in probably 80 per cent of all cases of kidney tuberculosis; but to be thorough in our methods, accurate in our diagnosis, and safe in our treatment, the ureters should be catheterized and guinea pigs injected with urine from each kidney. This will determine definitely whether one or both kidneys are tubercular. To remove one kidney when both are diseased would be disastrous.

Recently Petroff of Saranac Lake, New York, has described a new medium for the rapid isolation of tubercle bacilli from the sputum and feces. We are at present engaged in our laboratories in devising a technique for applying this method to the urine. It gives promise of obtaining a positive diagnosis by culture within one to two weeks, whereas the guinea pig test is hardly ever positive in less than three or four weeks. At present, however, we think it best to use a combination of the staining, culture, and inoculation methods.

Pyelitis or *Pyelo-Nephritis.* These two conditions are so closely associated and their symptoms so similar that we can discuss them as the same condition in so far as the bladder manifestations are concerned. Frequency of urination is present in about 75 per cent of the cases of simple infection, while marked cystitis is found in only about 16 to 18 per cent.

Urological men practically agree that the infection is through the blood and lymphatics—through the blood where there is no obstruction in the lower urinary tract and through the lymphatics where there is. Sweet and Stewart have shown that the lymphatics between the bladder, ureters, and kidney intimately anastomose, and that infection can readily be transmitted through them. This, I believe, is why kidney infection is more frequent in the female than in the male, and especially the pregnant female. It is said to occur in the latter in about 20 per cent of all cases. Here we have the lowered resisting power, the frequent bladder infection, and anastomatic lymphatics.

The cystitis, due to organisms other than tubercle bacilli, is less severe than that which occurs with tuberculosis. Clinically, this knowledge is of value in differentiating a simple from a tubercular infection. However, we may have a mixed infection. We should always be suspicious

of tuberculosis where we have areas of ulceration in the bladder. In such cases the above combined tests for tuberculosis should be used.

We not infrequently have general infection of the kidneys with practically no bladder infection or symptoms. I have recently seen several such cases, but all of long standing. The tissues seem to become accustomed to the presence of the bacteria, and as a result they produce only a slight reaction. It is also said that the symptoms produced by hematogenous infection are more marked than those due to lymphatic ascent.

The local kidney symptoms are also less severe in a simple pyelonephritis than in tuberculosis. The bladder symptoms grow less severe in the former and more aggravated in the latter. The proportion of the cases of cystitis resulting from renal infection is greater in the male than in the female. This again is due to the easy elimination in the female. Hematuria is present in about 40 per cent of the cases of kidney infection. To deviate from the subject a little, I will say that in hematuria due to a simple pelvic infection nitrate of silver irrigations through the ureteral catheter gives wonderful results.

In addition to the clinical symptoms of pyelo-nephritis, it is necessary to obtain pus from urine, secured by ureteral catheterization, in order to make a diagnosis. The amount of pus thus obtained varies in proportion to the activity of the infection. Patients with a sensitive bladder and practically no microscopic findings in the urine will often show bacterial growths from urine obtained by ureteral catheterization.

Bilateral infection occurs in about 70 to 75 per cent of the cases of simple kidney infections. It occurs much more frequently in the right than the left when unilateral.

The activity of a chronic renal infection varies considerably. At times it is almost dormant. In such cases the only symptoms noticeable is a slight frequency of urination. Here pyelography is of great advantage, as well as the phenol-sulphone-phthalein test. Pyelography shows ureteral and kidney pelvic dilatation and differentiates that due to inflammation from that due to back pressure. The phthalein output gives the kidney functional activity. This is in proportion to the extent of parachyma involvment. In the simple pyelitis, of course, the output will be normal, but in a pyelo-nephritis it will be diminished in proportion to the extent of the infection. The normal kidney function may be impaired as a result of a chronic parenchyma infection when there is practically no pus in the urine obtained by ureteral catheterization. In such cases a bacteriological examination will disclose not only infection, but also the nature of the infection.

Lithiasis. The clinical picture of lithiasis is so intimately associated with bladder symptoms that a distinct radiographic shadow in the kid-

ney or ureter would hardly be interpreted as that of stone without bladder symptoms. This is certainly true at the beginning of impacted ureteral stone.

Urinalysis may or may not reveal evidences of kidney stone. There is always more or less infection accompanying kidney stone, and, of course, its manifestation in the urine is in proportion to the activity of the infection, the size of the stone, and its location. One located in the kidney pelvis will produce greater frequency than when it is located in the kidney parenchyma. Blood and pus are also more constant in the urine when the stone is in the pelvis. Hematuria is increased by motion, and especially following violent exercise. I believe this is more constant if the stone is in the kidney pelvis.

In addition to the bladder manifestations and the usual clinical tests for kidney stone, the ureteral catheter and X-ray are indispensable if we are to be accurate in our diagnosis.

Neoplasm. There are practically no bladder manifestations of the kidney neoplasm except hematuria and the bladder symptoms accompanying ureteral occlusion with blood clot. Hematuria may be profuse, as in papilloma of the kidney pelvis, or it may be so slight as to be detected only by microscopical examination of urine obtained by ureteral catheterization. When the hemorrhage is profuse it may be intermittent and accompanied with attacks of colic as well as frequency of urination. These are produced by the ureters becoming occluded with blood clot.

In hypernephroma about the only symptom complained of is hematuria. Here again the ureteral catheter, phthalein output, and X-ray pictures are necessary to make an accurate diagnosis.

CONCLUSIONS.

1. Persisent frequency of urination is only a manifestation of a pathological condition somewhere in the genito-urinary tract.

2. Chronic frequency, without urethral obstruction, prostatic or seminal vesicle inflammation, means renal disease in practically every case.

3. The bladder manifestations of the various pathological conditions of the kidney are so similar that it is only by a close observation of the clinical symptoms and by the use of the most approved laboratory methods that we are able to differentiate not only between bladder and kidney lesions, but also between the various pathological conditions of the kidney.

TOTAL BONE GRAFTS INTO SKULL DEFECTS.

Dr. Addison G. Brenizer, Charlotte, N. C.

Viewed in the light of the results of experimentation and bone grafting done in man in the last few years, it is remarkable that so few cases of total autoplastic bone transplants into skull defects have been reported in the literature. Up to October, 1914, Rhodes[1] claimed that, so far as he could find, his four cases of large total graft into the cranium were the first to be reported. McWilliams[2] cites two cases reported by Paul Mueller,[3] where pedicled sternum flaps were used to fill skull defects. But these operations were unnecessarily complicated, for the reason that free grafts have been proven equally successful, and that the pedicle offers little advantage in the establishment of a new blood supply to the graft. McWilliams mentions a case of Schroeder, where he transplanted a piece of the scapula into the skull; also a case of Tomita, where he transplanted a piece of tibia with periosteum into the skull, and finally quotes Funke[4], who says that in all small defects of the skull the autoplastic graft is to be preferred above all other methods. There may be other cases, but I have not found a report of them.

This paucity of reports is all the more remarkable when the ease of execution of the grafting, as compared with grafting in other parts, is considered. With the aid of a set of modern bone instruments like those of Dr. Charles Geiger (Fig. 1), allowing the cutting of bone shells, in-

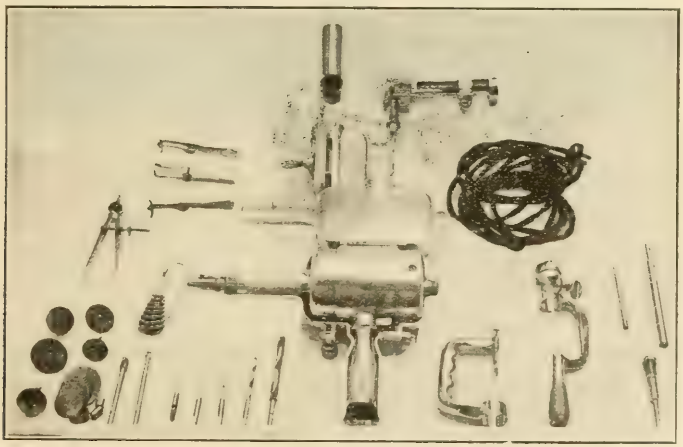

Fig. 1 (Chas. Geiger).—Some modern bone instruments, showing a sterilizable motor and connecting cord, circular saws, twin saws, trephine, burrs, drills, spiral bone cutter, dowel cutter; with guards, lathe, etc., for the same. Every part can be sterilized by dry and moist heat.

lays, wedges and nails, almost any required bone transplant may be fashioned in size and shape to fit a given defect in the skull; the defect in the skull may also be fashioned to help fit the transplant. Moreover, the structural conditions for the reception, for the support in a fixed position, and for the blood vascular supply are all good and favorable to the life of the grafted bone.

Defects in the skull show little spontaneous tendency to become filled with bone; they are filled with scar tissue, with little ingrowth of bone from the edges. This ingrowth from the edges is usually irregular and not under control as is the case with defects in long bones. Both my cases to be cited directly were of six and fifteen years duration, respect-

FIG. 2 (Brenizer).—A picture of Case I six weeks after the operation and the site of the old skull defect filled in by the bone transplant.

ively; both had been previously trephined, and both showed but little growth of new bone around the edges, and that irregular. The same cases showed an even filling out with bone and a limiting at the site of the former periosteum at the location where the bone transplant was taken from the tibia. (I believe a new periosteum is formed from the bordering connective tissue and the underlying bone cells; but why this remarkable shaping and control of growth in the case of long bones and the failure in the case of the skull?)

The bone edges surrounding skull defects are stimulated to greater activity in new bone formation by celluloid plates, bones from other animals, and boiled and living bone from other individuals. Numerous

such cases have been reported successful in the beginning, but the ultimate outcome has been left obscure in most cases. Funke[4] had one case of a celluloid plate which developed a sinus after ten years, and at the second operation, at that time, he found the plate broken and the consistency changed. These plates never become completely surrounded by bone. Albee[5] claims that metal even inhibits bone formation, produces bone absorption, and favors infection. "The bone graft apparently acts always as a stimulus to osteogenesis to the bone into which it is ingrafted or contacted." (Albee.) "The inner layer of the periosteum, the endos-

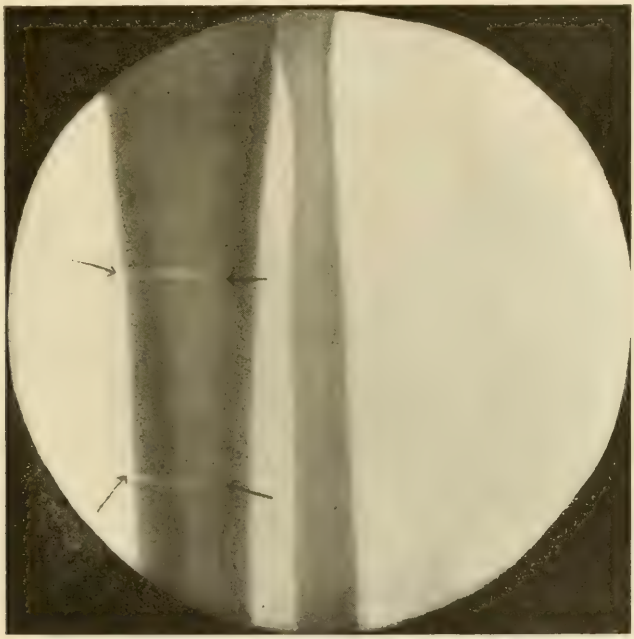

FIG. 3 (Brenizer).—The site where the graft was taken from the left tibia. The origin of the graft is well filled in and smooth even after six weeks.

teum, and to a much less, if not negligible, extent the lining of the haversian canals provide the cells for the osteogenesis in bone repair, to which may be added the comparatively few bone cells in the graft itself which survive." (McWilliams.)

Both of these factors: (*a*) the stimulation of new bone formation in the surrounding bone through contact with the graft, and (*b*) the growth of new bone from the constituents of the graft itself, are of great importance in filling skull defects where the surrounding bone otherwise shows little tendency to spontaneously reform. The degree of difference of new bone formation in response to the stimulating graft on the part

of the skull, as compared with that of a long bone, I cannot explain; the growth of the grafted bone in both instances would be in no way inhibited.

"The graft should be living, free or pedunculated, with as much periosteum covering as possible, and also containing endosteum and marrow, and the graft should be autogenous; that is, taken from the patient who is to be grafted. It seems certain that if the graft be made according to these rules nothing further is necessary to insure success, save the attainment of asepsis and the maintenance of immobilization." (McWilliams.)

Case I. A man thirty-five years old, whose head was severely crushed in a railway accident six years previously. At this time the head was

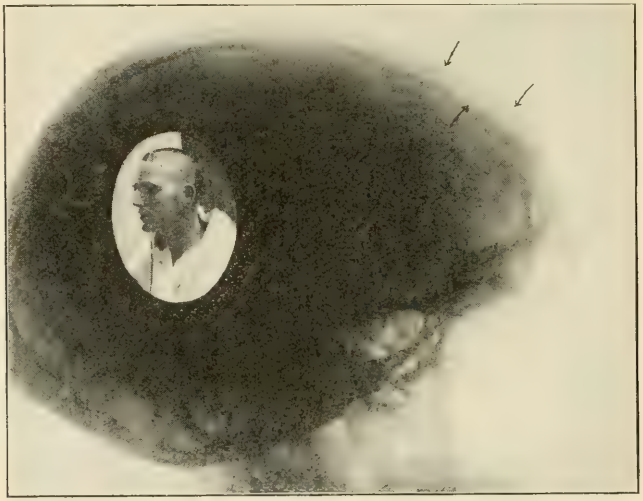

FIG. 4 (Brenizer).—This is a picture of Case II two weeks after the operation and of the site of the old skull defect filled in by the graft from the patient's left tibia.

trephined and some bone splinters removed. Shortly after this he developed "spells," when he would lose consciousness, and "spasms," mostly on the opposite side. Speech slow; apperception dull. There was a large depression over the left side of the skull, the soft parts drawn down tight, and the bone deficient over an area about 4 cm. x 6 cm. The soft parts were loosened up, the scar tissue removed, the callus around the edges cut away and the edges beveled at the expense of the outer table. Into this defect was grafted a rectangular bone shell taken from the tibia, cut and beveled to fit. A few stitches were placed to unite the periosteum of the graft with that of the skull and the wound closed. The graft was covered with periosteum and was cut just to the marrow

cavity. Fig. 2 shows a picture of the man six weeks after the operation and the site of the old skull defect filled by the bone transplant; Fig. 3 the site where the graft was taken from the left tibia. The origin of the graft is well filled in and smooth even after six weeks. The case was operated on about a year prior to date, and I heard from the man a few days ago that his head was well closed, and that he had not had a "spell" in a number of months.

Case II. A man twenty-two years old, kicked in the head by a mule fifteen years previously. Some bone was removed, some came out from

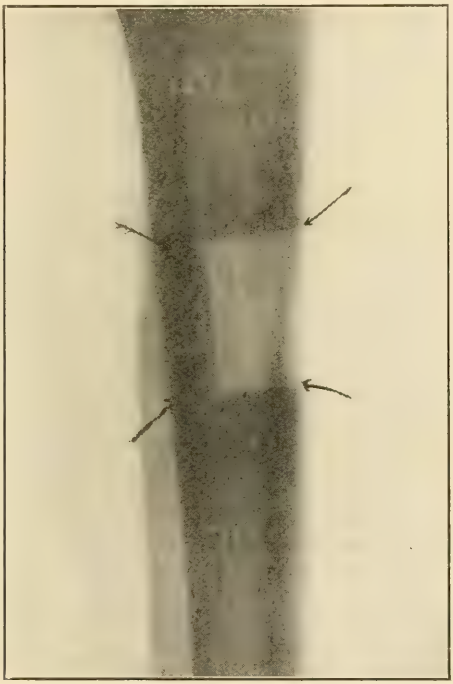

Fig. 5 (Brenizer).—Shows the location on the inner surface of the left tibia where the graft was taken.

time to time, leaving his head sunken in. He formerly dragged the leg on the opposite side and dropped words. Had great deal of headache and pain over the depression. Head was trephined a year ago; symptoms better for a while, again worse. Depression and opening in skull about 3 cm. x 4 cm., the soft parts were drawn down and attached. The soft parts were liberated, scar tissue and callus removed, dura freed and the edges beveled to receive the graft taken from the left tibia. Fig. 4 is a picture of the patient two weeks after the operation and of the site of the skull defect filled in by the graft, and Fig. 5 the location on the

surface of the left tibia where the graft was taken. The man, after four weeks, reports himself improved.

The chances of fracture of the tibia after the removal of the graft are not very great if the patient takes reasonable care of his leg for a few weeks, as the area quickly becomes filled with bone and is made strong.

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DISCUSSION.

Dr. J. T. Burrus, High Point: There is one thing in connection with this subject that I am sorry Brenizer did not bring out. I notice the title of his paper speaks of bone grafts into skull defects. I think any one who endeavors to do this bone grafting, or very much bone grafting, should know something of Geiger apparatus. It is an apparatus that is very helpful in doing any kind of bone work. I wish that it was possible that Dr. Brenizer could demonstrate this to us if it is possible to get this set.

Dr. Brenizer: I refrained from bringing my demonstration with me on account of the place of meeting. I thought it was impossible, and was doubly glad because the meeting was growing late all the time.

INTESTINAL OBSTRUCTION DUE TO MECKEL'S DIVERTICULUM; WITH REPORT OF A CASE.

Dr. David A. Garrison, Gastonia, N. C.

Meckel's diverticulum is present in from 1 per cent to 2 per cent of all persons, being about three times as frequent in the male as in the female.[1] Diverticula are either true or false, true diverticula having walls similar to the intestine, while false lack the muscular coat. Diverticula may be single or multiple and may be situated anywhere between

the stomach and anus. Meckel's diverticulum occurs usually about a foot above the ilio-cecal junction. Because of the relatively large size of the lumen of an intestinal diverticulum a large per cent of the pathological lesions occurring in such a blind pouch is due to impaction, according to Skeene. He further says that a small per cent of cases of diverticulitis is due to traumatism. Balfour,[2] in 10,600 abdominal operations at the Mayo Clinic, reports five that were due to Meckel's diverticulum. In Porter's 184 cases[3] the average age at which the diverticulum gave trouble was twenty-one years. As shown by Griffith,[1] the most frequent condition produced by inflammation of intestinal diverticula is intestinal obstruction. Porter[3] reports 184 cases of obstruction. Wellington,[4] in 326 cases of disease of Meckel's diverticulum, found obstruction in 144 cases, or 44 per cent. Eisendrath[5] has shown that obstruction is brought about usually by the presence of a cord or band extending from the tip of the diverticulum to an attachment in some other point of the abdomen. Turner,[6] in 145 normal diverticula at post-mortem, found the extremity attached in only 9, whereas in 161 pathological diverticula he found the extremity attached in 110. In about one-third of the cases this cord, when present, is attached to the umbilicus. In quite a per cent of cases it is attached to the mesentery and abdominal wall, and less frequently to other abdominal viscera.

The symptoms of obstruction from Meckel's diverticulum are those obstructions from any cause, namely, pain, vomiting, constipation, distension, etc. The pain sets in early and may come on while the patient is about his usual work. It is colicky in character at first, but later becomes continuous and very intense. Vomiting soon follows, and is a constant and most distressing symptom. At first the contents of the stomach is expelled, then a greenish, bile-stained material, and soon, in cases of acute and complete obstruction, a brownish-black liquid with a distinctly fecal odor is vomited. The sequence of gastric, bilious, and finally fecal vomiting is perhaps the most important diagnostic feature of acute obstruction. Constipation may be absolute without the discharge of even feces or gas. Distension of the abdomen usually occurs, and when the large bowel is involved it is extreme. Of course, the nearer the obstruction is to the stomach the less the tympany. The abdomen is not tender at first, but later becomes acute sensitive, with marked rigidity. The constitutional symptoms are severe from the onset. The face is pallid and anxious; the eyes become sunken; the features, pinched; and the skin is covered with a clammy sweat. Pulse becomes rapid and feeble. The temperature may be subnormal. The tongue is dry and parched, with an insatiable thirst. The urine is scanty and highly colored, due to the well-known marked loss of fluid in obstruction.

The treatment of intestinal obstruction due to any cause is necessarily surgical. Without surgical interference these cases terminate in from three to six days in gradually oncoming coma, followed by death. The mortality varies directly with the length of time the obstruction has lasted. The earlier the operation the better is the outlook. Since these cases can now be operated on at home, without the danger and delay of a trip to some surgical clinic the general mortality from obstruction is falling steadily. The operative mortality in the 184 cases reported by Porter was 50 per cent. In Wellington's 144 cases of obstruction 108 were operated with 50 deaths, 52 recoveries, and 6 unknown. In 28 cases not operated the mortality was 100 per cent.

CASE REPORT.

At 11 p. m., November 13, 1915, I was called to see B. R., a white male, age 17, a machinist, who gave the following history: The night before he had eaten a hearty supper, and waked up at 4 a. m. with a severe pain in his stomach; he felt a desire to go to stool, but was unable to have a movement. He then took two ounces of Epsom salts, which he vomited; repeated this 9 a. m., and again vomited. Then the pain became more and more severe with almost continuous vomiting. At 1 p. m. tried a soap-suds enema, which returned clear. At 2 p. m. took two ounces of castor oil, which was vomited within ten minutes. When I arrived that night I found him with hot towels on the abdomen, tossing in the bed, and suffering intensely. Temperature 99, pulse 108, respiration 21. Slight tympany, slight tenderness over abdomen, no rigidity. I gave at once an enema of one gallon of hot soap suds, with hips greatly elevated, but without result. This was repeated in thirty minutes; again without results in spite of having the man almost on his head. A third soap-suds enema was still without result. I then introduced a quart of normal saline into the bowel, gave one-quarter grain morphia by hypo, and left him for the night.

At 10 a. m. the next day I found him still suffering and vomiting after the effects of the morphia had worn off. He was given one drachm of alum in three ounces of water as a high enema, followed immediately by one pint of warm olive oil. As nothing had returned in thirty minutes, he was given half a gallon of suds, and the entire enema then returned without results. The alum and olive oil were repeated without results. I then gave him one-sixth grain morphia and left him at 12:30 p. m., with temperature 98, pulse 120, respiration 21, still suffering with acute pain.

At 3 p. m. his temperature was 95, with pulse 140, respiration 28, extremities cold, skin cold and clammy, fecal vomiting, with all the symptoms of obstruction and grave collapse. Operation was at first refused flatly, his mother saying, "No use to operate on a dead boy." With the plea that surgery offered the only chance for life, I finally gained the consent of the parents, and operated at 5 p. m. When put on the table his temperature was 95, pulse 132, respiration 18, after the preparatory morphia and atropine. On opening the abdomen we found about a gallon of blood-stained serum in the peritoneal cavity. A short distance above the cecum the ileum was tightly encircled by a Meckel's diverticulum, the tip being attached to the base,

causing a complete obstruction of the gut. This diverticulum was loosened, unwrapped, and removed, the stump being treated just as an appendix stump is treated. He was sewed up quickly and put to bed with a half-gallon of warm saline in the lower bowel. The fecal debris was washed out of the stomach while he was still on the table. A continuous Murphy drip was given for thirty-six hours, as he showed signs of shock for this length of time. Further convalescence uneventful; up in twelve days, dismissed from the hospital in seventeen days.

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DISCUSSION.

Dr. John W. Long: I would like to say that of the fourteen papers in the Surgical Section, including Dr. Mayo's splendid address, that eleven of them have been read and discussed, and one of the papers seems to have gotten into this section by mistake, so we really have thirteen papers and eleven of them read and discussed. As chairman of this section, I want to thank you, the essayists, for their papers and the kind attention which the audience has given.

PRACTICE OF MEDICINE

AN ANALYSIS OF 30 CASES OF PULMONARY TUBERCULOSIS TREATED BY THE INDUCTION OF AN ARTIFICIAL PNEUMOTHORAX.

Paul H. Ringer, A.B., M.D., Asheville, N. C.

In this paper it is my intention to abstain wholly from technicalities, and to present that in which, after all, we are most interested: the results of treatment.

It need merely be mentioned that by the induction of an artificial pneumothorax it is sought to compress the lung in an "air splint": this air splint consisting of nitrogen gas allowed to flow between the parietal and visceral layers of the pleura; and that by maintenance of this compression and consequent absolute rest to the damaged organ for a period of time varying from 6 months to 3 years, it is hoped to obtain cicatrization and healing of the diseased lung. Cases suited for this treatment are either those that are wholly unilateral, or those with severe involvement on one side and very insignificant disease on the other.

In my work I have used exclusively the puncture method of Forlanini, inserting the needle through the different layers of tissue until it was seen by the characteristic negative fluctuations of the water manometer with which the needle was connected that the eye of the latter lay between the pleural layers. With the needle carefully held in this position the manometer was turned off and the gas turned on.

The cases treated by this method have all been advanced cases with the exception of four. In three of these pneumothorax was induced for the purpose of stopping persistent bleeding, and in the fourth case to check a rapid spread of disease from an apparently small focus. Some of the cases have been wholly unilateral; the majority have been bilateral with by far the greater amount of involvement upon the side it was sought to compress.

In the past 3½ years the procedure has been tried on 30 cases. I have grouped my results under 5 headings:

1. Complete Success	7 or 23.3 per cent
2. Complete success for stopping hemorrhage	3 or 10. per cent
3. Partial success (gas still being given)	2 or 6.6 per cent
4. Prolongation of life for an appreciable period of time	4 or 13.3 per cent
5. Failure	14 or 46.6 per cent

If headings 1 and 2 are considered together, the percentage of successful attempts is raised to 33.3 per cent.

In the cases coming under heading 1, Complete success, there resulted a complete cessation of or a very marked diminution in all symptoms. Temperature became normal, cough and sputum disappeared wholly or almost so, and the patients gained strength so that they were able to walk without fatigue for an hour or more daily, and were once more able to attend to their household duties or to resume work: in other words, they achieved an "economic recovery." Thus, one of these cases (Miss A., Fig. 1), collapsed in July, 1913, is living in the mountain region of western Carolina attending to her household duties: one, collapsed in 1914, has returned to teaching; one, collapsed in 1914, to his work of collecting; one, collapsed in 1914, to resume his studies in Florida; one, collapsed in March, 1915, to resume her life in Indiana; one, collapsed in 1914, has taken up the calling of a merchant in Asheville; and one (Mrs. K., Fig. 3) is still under my care doing very well indeed. These patients have not all stopped taking gas. I know that of the 7 cases, three are still receiving injections, and perhaps a fourth, unless the effusion which developed on the collapsed side has wholly filled the pleural space. These 7 cases represent the actual saving of 7 lives, for in each case the results of prolonged rest in bed under a strict dietetic-hygienic regimen had borne no results, and had it not been for the beneficial effect of collapsing the lung there would have been nothing left to do save to sit by and watch the patient die.

In my series 4 cases were compressed for the stopping of profuse and continued bleeding, and three out of the four were successes. In the fourth case the bleeding was stopped, but the patient was so nearly exsanguinated that he could not rally, and death ensued within three days. This case is, therefore, classified under the heading of Failure. The hemorrhage cases are not included under heading 1, because it was not my intention in these cases to continue compression after being certain beyond a reasonable doubt that a firm clot had formed over the site of bleeding. The procedure of compression was a temporary and an emergency measure. In one of these cases, that of a physician, I had declined to collapse his left lung a year previously because of too great involvement on the right side. I lost sight of him but was called in September, 1914, to find him bleeding profusely from the left lung. Medical measures seemed to have no effect whatsoever. Gas was introduced on the left side and bleeding promptly stopped. The patient was well nigh exsanguinated, but pulled through with the help of vigorous stimulation. Compression was maintained for two months. He then left, greatly improved, for his home in Virginia, and, I subsequently

heard, became well enough to resume a limited amount of his practice. In another case seen in consultation, the patient was so exsanguinated as to appear moribund. Three injections of gas stopped the hemorrhage in this case, and bleeding never recurred. The patient eventually died of his tuberculosis, but lived on many months after the checking of the hemorrhage. Another case was given 3 injections within a week into the left pleural cavity for the purpose of controlling numerous moderate hemorrhages—3 to 4 ounces every 4 to 6 hours. Bleeding was checked by the first injection of 900 c.c. of gas and wholly suppressed by the second injection of 600 c.c. given 36 hours later. The third injection was given 4 days later to insure no further bleeding as the patient was not readily accessible, being some 20 miles from Asheville. His physician has recently written me that no further bleeding has occurred, and that he has made uninterrupted improvement.

Though the number of cases in this class is small, yet the results have been so brilliant that I strongly advocate using gas for checking hemorrhage if severe or protracted, and uninfluenced by medical measures.

I have two cases that I have grouped under heading 3 (Miss P., Fig. 3, and Mrs. W., Fig. 4). Both have been under observation for some time: once since December, 1914, and one since August, 1915. The lives of both have unquestionably been saved by pneumothorax, yet the condition now is by no means one approaching complete recovery. Temperature has been wholly banished in one case (Miss P.) and reduced from 101+ to a maximum of 99.4 in the other (Miss W.), but cough and sputum containing tubercle bacilli continues to a decided extent, though less so than before the use of gas. Both cases are moderately dyspnœic, and one (Miss P.) cannot do more than one-half hour's walking without distinct fatigue. Both are holding a rather subnormal weight, which, however, is rather characteristic of gas cases, due probably to a marked deficiency in the blood oxygenating surface. The reason for the persistance of symptoms in the two patients is, as will be seen by consulting the radiographs, that an incomplete collapse has been obtained and one or more cavities are held open by pleural adhesions. The walls of the cavities being unable to coaptate, secretion continues: hence cough and sputum. These patients have reached the limit of possible improvement as far as pneumothorax is concerned; and the gas injections should be continued indefinitely. This is not encouraging in one sense, and yet on the other hand, there is no reason why both these patients should not enjoy their present state of health for years to come, and that state of health is such as to enable their lives to be by no means devoid of happiness and usefulness.

Four cases appear under heading 4. All these patients have died, yet in all the gas alleviated their symptoms to a considerable degree, rendered them more comfortable and appreciably prolonged their lives. In one, life was unquestionably prolonged for a year; in another for 6 months; in two others for at least 4 months. Death occurred in one case from a sudden dissemination of the tuberculous process in the uncompressed side with symptoms typical of an acute suffocative phthisis; in one from an acute exacerbation of a chronic nephritis; in one from the development of a perforation from the pleural cavity into a bronchus with a resulting pyo-pneumothorax; and in one from a gradual creeping spread of the tuberculous process in the uncollapsed lung; gas in these four cases was a palliative measure; a help—nothing more.

The last heading, that of Failure, looms large, embracing 14 cases or 46.6 per cent of the total number. The number is too great to permit of a detailed analysis of each case, but the following causes for nonsuccess are assignable:

1. Pocket formation—small amounts of gas injected, but surrounding adhesions so dense as to preclude any appreciable amount of collapse	5 or 35.7 per cent
2. Compression obtained to a decided degree, but no result apparent probably because of deep-seated undiscoverable or undiscovered disease in opposite side	2 or 14.2 per cent
3. Adhesions so dense as to obliterate pleural space	5 or 35.7 per cent
4. Development of tuberculous pneumonia in opposite side.	1 or 7.1 per cent
5. Exhaustion—collapse obtained, but patient too near death to rally	1 or 7.1 per cent

It is thus readily seen that in over 71 per cent of the failures adhesions were responsible. Adhesions are indeed the one great impediment to the successful beginning of a pneumothorax, and the one great obstacle to its becoming complete when started.

Upon looking over this brief review, the conclusion is obvious that the method is worth while and that artificial pneumothorax as a factor in pulmonary therapeutics has come to stay. Any method whatsoever that shows success in almost 25 per cent of the cases cannot and should not be disregarded. In the hands of physicians experienced in lung work and having a full knowledge of the very simple technique and of the possible dangers, accidents due to this procedure should be reduced to a minimum, and many individuals otherwise hopelessly doomed should be restored to complete or comparative health, and to many years of joy and usefulness.

DISCUSSION.

Dr. I. W. Faison, Charlotte: I wish you would call on somebody else. I have got my head full of another paper.

Dr. C. L. Minor, Asheville: I do not think anything more important in the line of the treatment of pulmonary tuberculosis has happened than the development of this operation, which we owe to the genius of the Italian Forlanini, and not to the Germans, who since 1906, have been trying to claim it as their own. Doubtless Dr. Brauer added a great deal to its perfection, but the idea was not his. I have had experience of somewhat over one hundred cases and I feel I would not be at all willing to do without it in my work. It gives an opportunity to the hopeless case that nothing else could possibly do, and saves some cases from the grave in a truly remarkable way. Even where it cannot cure, it wonderfully prolongs life and eases symptoms. It is unquestionable, however, that when we reach a point when the operation is no longer available for various reasons, the discouragement to the patient is something terrible.

Its use in the stoppage of obstinate hemorrhages where it is effectual, is really remarkable, but, of course, if there are many adhesions, it cannot be applied. Unfortunately the operation is not one which should be intrusted to the inexpert. A man should have much familiarity with it, familiarity with diseases of the lungs, and then it can be considered a reasonably safe operation, but in the hands of the rash or the careless there are great dangers connected with it. However, after the lung has been collapsed by a competent person, the general practitioner can keep the collapse up with ease, if he only has the apparatus.

As to how long to keep up the pressure, there is no satisfactory answer. Shall you keep on injecting gas always, or shall you stop it after six months, or a year, or two years, unless the lung reëxpands? Personally, I feel a little more comfortable when I keep it up, but I have ceased giving it in a number of cases and they have continued their excellent condition.

It is worth remembering that even when the lung cannot be totally collapsed, much benefit can be gotten from the operation and it need not by any means be given up on that account. After the lung is once well collapsed, a reinjection of gas once every month or six weeks is ample and is a very simple matter.

Finally, in hopeless cases of tuberculosis, with one lung in very bad condition and the other with only moderate trouble, where the patient has otherwise very little outlook, it is not only right, but our absolute

duty to give our patients the opportunity which pneumothorax gives for recovery.

Dr. M. H. Fletcher: This kind of work is comparatively new to a great many of us. I understand Dr. Thompson, of Texas, has done some of this work and we would be glad to have him tell us about it.

Dr. S. E. Thompson: I have never done any individual work in artificial pneumothorax and, until recently, I have been prejudiced against it. I had gotten so many unsatisfactory reports from those who are doing or had been doing this work, that I was very much prejudiced. I had understood that given sufficient time, there would be effusions—sometimes purulent—in an hundred per cent of these cases treated by artificial pneumothorax. I recently made a trip through New Mexico and visited several sanatoria for the purpose of studying artificial pneumothorax. I had the privilege of assisting in giving it to a number of patients; also examined a number who had been previously treated by this method. In my judgment, the results were satisfactory. I believe that in certain well selected cases, artificial pneumothorax, properly and gradually induced, has an important place in the treatment of pulmonary tuberculosis. I believe a great deal of trouble resulting from this treatment, has been due to giving too large doses. The best results I have witnessed were in cases where small doses, slowly increased, were given.

I do not believe artificial pneumothorax is a safe measure for the average physician. In the first place, a vast amount of special knowledge is needed to determine whether the patient is suitable for this treatment, at what stage in the treatment it should be given, or what amount of gas should be put in the pleural cavity. Our profession is prone to swing with the pendulum and for this reason I think the administration of this treatment should be in the hands of those who have had an opportunity to go thoroughly into every phase of this question. When I discussed artificial pneumothorax with my patients, every one of them wanted to take it.

Dr. W. L. Dunn, Asheville: I do not know that after what has already been said there is much left to be said. It is one of the most fascinating things that has come back into use.

But I would like to stress one or two points, particularly one of them as referred to by Dr. Thompson, and that is the question of the general use of this procedure by those who are not specially skilled, and who have no special opportunity in the careful diagnosis of pulmonary conditions except the success of this procedure. The ultimate success is determined almost entirely by a man's ability to determine whether the good lung is in a condition to stand for pressure of the diseased lung.

I would like to stress the importance of the use of the X-ray in the examination of those cases before reducing to pneumothorax. I do not mean that it is absolutely necessary, but it is certainly important to make such examination first.

Another point, don't be in too big a hurry to use the artificial pneumothorax. In cases apparently doing badly because they are doing badly, where one lung is very badly diseased and the other has some active disease. Even in apparently losing cases I have been able by rest to get a good lung sufficiently quiescent to take the treatment. If I had used it at the first moment I wanted to I am sure that I would have had a failure. I would have had an increased activity in the diseased side. The results of this procedure are sometimes so very dramatic that we are very apt to become over enthusiastic. That is one of our particular dangers.

I will mention one or two cases. One patient I had put to rest for eleven months, with one lung very bad, the other with some active trouble. She was put there to try out the rest, and, secondly, to see if the good lung would not become quiescent enough to undertake the proceeding. High temperature, bed ridden for eleven months, induction of pneumothorax, she was after two or three weeks out with the other patients, apparently raised from the dead. Another patient twelve months in bed, pneumothorax was taken as a sporting chance. He wanted to take it. Inside of a month he was on the piazza, gaining weight, and apparently getting well.

These things are so dramatic that they are apt to lead us to take it too quickly. I think it is the dramatic side that has led more of us into trouble than anything else. If we will give it the same consideration that we do to therapeutic measures, I think you will agree it is not a measure to be displaced, that we can congratulate ourselves that it has come to help cases that would otherwise have gone steadily downward.

Dr. J. F. McKay, Buie's Creek: We have been giving the pneumothorax treatment about twelve months. We have treated in that time ten or twelve cases. We have two remarkable results. One of them the doctor has spoken to you about. From a temperature of 102, after two or three weeks after the pneumothorax was used the patient's temperature dropped, he began to get up and he was examined in a month and has been steadily on exercise since. He left the sanatorium a month or two ago and expects to come back every month or six weeks to take the treatment. The other case was one when the patient had been in bed six to eight months, temperature from 100 to 102. She has shown a gradual improvement for five months. She takes exercise twice a day.

What I have said has already been covered by Dr. Minor and Dr. Dunn. This is the best thing developed for tuberculosis in the last ten or twelve years. It gives a chance to a man that has no other chance.

I want to report one other case which shows you the hope on one side and disappointment on the other. A man for three years seemed utterly hopeless. For two years after that was in fine shape, with normal temperature. He collected fluid in the chest, which occurs in a large number of cases, finally broke through, and no further pneumothorax was possible. He is now just as sick as he was before, he has gone to the arid zone, he can no longer hope for any cure. He has had his life prolonged, has enjoyed himself, and even with such results what Dr. Dunn says is true, there is a great danger of over-enthusiasm.

Dr. L. B. McBrayer, Sanatorium: There is probably one thing in connection with this, Dr. Minor touched on it, and it is a thing that I think ought to be mentioned in connection with it, and that is effusion. He says it occurs quite frequently with artificial pneumothorax. If compression of the lung is good effusion is good and we have had one case where the effusion increased so much it pushed the heart to the right side. It was one of these hopeless cases. One that did not improve. In the course of a week after recovering from the shock he improved steadily every day. When he left the heart was still on the right side. By the way, the reason he happened to leave us was because of taking a drink of whiskey, and we don't treat them that way in this day. When Dr. Minor first came to Asheville that was one of the methods of treatment. The general practitioner ought, and the surgeon, too, ought to understand that compression of the lung by effusion is ofttimes the best thing that could happen to the patient, and if you take it out you do harm rather than good. Don't remove an effusion from the pleural cavity unless it is purulent.

Dr. P. R. Hardee, Stem: We country doctors of the older school have learned to believe that simple tuberculosis is an exceedingly chronic disease. My observation is these cases live for years after the tubercular bacilli is shown to be present. I mean by simple tuberculosis, tuberculosis of the lungs with no other infection. But when the sputum shows streptococci and stphylococci it is then a mixed infection and we expect a speedy termination in these cases. Does this artificial pneumothorax have a beneficial effect on these cases of mixed infection?

Dr. Paul H. Ringer, Asheville: Gentlemen, I am very grateful indeed for the discussions of this paper. It is a subject of great interest but I hardly hoped that a paper of this class would bring so much discussion.

I do not think that the presence or absence of the mixed infection of the sputum would play any part in making up our minds as to using pneumothrax. It would depend entirely upon the clinical symptoms. In a mixed case you will have a sicker patient ofttimes than in a purely tuberculous case. Perhaps that would be an added indication for that form of treatment, provided that the distribution of the disease in the two lungs was such as to allow the procedure to become established.

I cannot agree entirely with my good friend Dr. McBrayer as to the effusions. Effusions do occur in about fifty per cent of the cases. By effusion we may mean from one-half ounce of fluids to a chest full. Theoretically this compression should be efficient. If the fluid stays in a long time it is apt to lose its clear condition and become thick. As soon as it does that, of course the compression of the lung has passed out of the control of the physician, and you must always bear in mind the case of Dr. Minor, that even two or three years later it may become necessary to take out the gas. Of course, in Dr. Minor's case, that was done spontaneously, but it may happen after two or three years. In that case you cannot take out the gas and allow this compressed lung to re-expand because of the jellification of the fluid. My experience makes me inclined to take out any considerable fluid that accumulates. If it reaccummulates I may take it out. If it occurs a third time, I usually take a chance of leaving it. Theoretically it should work out all right.

I do not know that I might add anything to the discussions, there are so many byways which we could take, that it would simply give us an excuse to talk, and, I fear me, that the majority of you would be bored.

It is not often that any of us in this State have to come more than 400 or 450 miles to attend the meeting of the North Carolina Medical Society, and in this case, I doubt if any of us have come more than 250 miles, except Dr. Highway, of Murphy. We have a man who has come 1,800 miles to attend the meetings and to read a paper. It seems to me that he should be allowed time in proportion to the mileage he has come, and as Dr. Thompson, of Texas, has a paper to present to us, I propose for his paper that the time limit of twenty minutes be extended. It comes next on the program and his subject is "Common Sense and the Fever Thermometer versus the Stethoscope and the Microscope in the Early Diagnosis of Pulmonary Tuberculosis." You see it has an eighteen hundred mile title.

THE DIAGNOSIS OF EARLY PULMONARY TUBERCULOSIS FOR THE GENERAL PRACTITIONER.

Dr. S. E. Thompson of Carlsbad, Texas.

In presenting this paper I shall endeavor to prove the following:

1. We are finding only a very small per cent of our incipient tuberculous patients.

2. That this is due largely to faulty teaching.

3. That as a result of this faulty teaching, we cannot rely on the stethoscope.

4. That the microscope will not make a sufficiently early diagnosis.

5. That in using common sense and the fever thermometer we can find a large number of early cases.

We cannot deny the fact that the physician who makes a diagnosis in incipient pulmonary tuberculosis is assuming a great responsibility. To tell a patient he has consumption is a very serious matter. To have such patients give up their business, leave their homes for an indeterminate period of time, or possibly enter a tuberculosis sanatorium, is a much more serious matter. But looking from another standpoint: to delay the diagnosis and therefore the treatment during the perfectly curable stages of the disease, is the most serious question of all. To delay the diagnosis means for the patient a life of semi or complete invalidism, with the enforced abandonment of ambitions, responsibilities and purposes of life. Nothing can be more serious, more positively tragic, than a delayed diagnosis in pulmonary tuberculosis. To delay the diagnosis in typhoid fever, malaria or syphilis, may cost the patient little or nothing, but a delay in tuberculosis, as a rule, means his ruin.

First, let us inquire into the question of early diagnosis and find out if these cases are being discovered. Are we diagnosing these cases when it can and should be done? This is the burning question.

From the best information I have been able to obtain, not more than 10 per cent of tuberculous patients sent to sanatoria are in the incipient stage; notwithstanding the fact that more than 60 per cent of them are classified as first stage cases by the doctors making out the applications.

In 1912, Dr. John B. Hawes, 2d of Mass., stated that out of 350 patients at Rutland State Sanatorium, an institution exclusively for the treatment of incipient cases, only 34 per cent were first stage cases. This was when all patients were examined by special physicians ap-

pointed for that purpose. Later, when any doctor could make the examination, the per cent of incipient cases fell to 18. The remaining 82 per cent were moderately advanced, and advanced. In reviewing "500 patients, 75 per cent of whom were in the moderately advanced or advanced stages," he found that 285 were frankly advised by the first physician consulted, that they did not have tuberculosis.

Dr. Richard C. Cabot, than whom there is no better diagnostician in America, in discussing the above report by Dr. Hawes said: "I have had an opportunity to teach post graduate students during the past ten years. I have taught five hundred graduate physicians from pretty nearly every State in the Union. I think it is not exaggeration to say that 98 per cent of those gentlemen knew nothing about the physical signs of incipient tuberculosis. That is their statement to me, not my statement about them.

"I have taken these graduate classes to Rutland, where, by the kindness of the trustees and attending physicians, my pupils have had the privilege of examining these cases, and it has been the same story year after year. We take a group of incipient cases and the students examine them carefully, when they say to me (in substance) 'what you call advanced, we call incipient and what you call incipient, we call normal lungs.' I have not myself the least doubt that this is the state of the medical profession throughout the United States—98 per cent of it.

"We mustn't forget the fact that this diagnosis is a very difficult one from the physical signs. I think it is true to say that on the whole, the history of the patient is going to be of more importance in the recognition of early cases than the physical signs, for I don't believe the average general practitioner will be able for many years to recognize incipient tuberculosis from the physical signs. The signs are too faint, the number of men who can hear them is comparatively small."

In the same year the above report was made, Dr. Hoyt E. Dearholt, Executive Secretary of the Wisconsin Anti-Tuberculosis Association, reported conditions in Wisconsin equally bad or worse.

In 1914, Dr. Lavenson, of Los Angeles, California, in a report published in the Journal of the A. M. A., showed that in a series of cases in all stages, 81 $^{9}/_{11}$ per cent were advised that they did not have tuberculosis when they first sought relief from their symptoms.

In May, 1915, before the Texas State Medical Society, I reported my investigation of one hundred cases at the Texas State Tuberculosis Sanatorium. Eighty-eight per cent of this hundred cases were not diagnosed when they first sought relief, and were frankly advised that they did not have tuberculosis. The diagnoses were finally made from within four weeks to six years. At the sanatorium, 6 per cent of these cases

were classed as incipient, 40 per cent were moderately advanced, and 54 per cent were advanced.

I presume the conditions in these four States, Massachusetts, Minnesota, California, and Texas, representing as they do, every point of the compass, is fairly illustrative. And if these reports give the true status, "There is something rotten in Denmark." There is something radically wrong somewhere, and it is our duty to find and correct it.

I submit the examining physician's report on the following cases, for the reason that so far as I have been able to learn, it is in line with the conditions existing in every State Tuberculosis Sanatorium. On the second page of every application blank we send out, is printed the definition of the different stages of tuberculosis, adopted by The National Association for the Study and Prevention of Tuberculosis. The examining physicians sign just above the following:

INCIPIENT:

"Slight or no constitutional symptoms (including particularly gastric or intestinal disturbances or rapid loss of weight); slight or no elevation of temperature or pulse at any time during the twenty-four hours. Expectoration usually small in amount or absent. Tubercule bacilli may be present or absent. Slight infiltration limited to the apex of one or both lungs, or a small part of one lobe. No tuberculous complications."

In order to avoid all personal bias, I requested the stenographer to select from our files the application of six incipients. I quote these reports:

"A"

"Female, Age, 27. Had tuberculosis for one year. Morning temperature, 98.5; P. M. temperature, 100. Loss in weight, 15 pounds. Slight affection of apex. Throat involved. Patient anemic and weak. Incipient stage. Prognosis good."

"B"

"Male. Age, 50. Tuberculosis for 18 months. Morning temperature, 98; P. M. temperature, 101. A. M. pulse, 100; P. M. pulse, 108. Loss in weight, 40 pounds; pale; very weak. Incipient. Prognosis good."

"C"

"Male. Age, 20. Tuberculosis for four months. Temperature and pulse not given. Loss in weight, 20 pounds."

This patient was in a dying condition. Returned home and died in three weeks.

"D"

"Male. Age, 32. Had tuberculosis for three months. Morning temperature, 98; P. M. temperature, 100. Pulse, 100. Incipient. Prognosis good."

This patient was kept in bed for five months. Returned home and died.

"E"

"Male. Age, 33. Tuberculosis for six months. Morning temperature, 98; P. M. temperature, 100. Loss in weight, 30 pounds. Incipient. Prognosis good."

Entire chain of right cervical glands infected and range in size from a buck-shot to an English walnut. Patient has been in bed four months. No improvement.

"F"

"Male. Age, 48. Morning temperature, 99; P. M. temperature, 100. Loss in weight, 20 pounds. Right apex infiltrated. Prognosis excellent."

This patient is still confined to his bed after seven months in the sanatorium. Reclassified on entering the sanatorium. All these were put in the advanced stage.

If the condition presented up to this point represents the attitude of our physicians to early tuberculosis, there must be some strong reason for it. I shall now endeavor to present what I believe to be largely responsible for this most disastrous condition of affairs.

As I see it, faulty teaching has given us the wrong idea of tuberculosis. Our clinical picture of the early stage of this disease is wrong. Twenty-five hundred years ago, Hippocrates described a tuberculous patient as pale, wasted, bright eyes, burning cheeks, continuous cough, night sweats, high fever. This is tuberculosis all right, but it is the closing scene.

I shall now quote from our most popular text books on practice and endeavor to show that there is little, if any, change in this Hippocratic picture. And I wish to stress the fact that these are the books from which the physicians get their ideas of tuberculosis. I do not think it exaggeration to say that some of these books are in the office of every doctor, and he relies on them. Only those specially interested in tuberculosis buy books treating this subject alone.

Practical Medicine, by Thompson, published July, 1900, page 245, under Symptoms:

"1. Hæmopthysis, which may precede any other evidence of local trouble and be repeated several times at intervals of months or a year or two. In other cases it is the forerunner of very rapid local changes.

2. Acid dyspspsia and anæmia with palpitation and lassitude.

3. Obstinate cough following a slight cold, a protracted winter cough in several successive seasons.

4. Progressive loss of weight and strength, although the patient may be eating and sleeping well.

5. Chills, fever and sweating as in malarial fever.

6. A continued hectic type of fever, prolonged, of low grade and not yielding easily to treatment."

Practice of Medicine, by Osler, published in 1895, under Symptoms, page 240: "Pain in the chest may be early and troublesome or absent altogether. It is usually associated with pleurisy and may be sharp and stabbing in character and either constant or felt only during coughing. Cough is one of the earliest symptoms and is persistent in the majority of instances from beginning to end."

As these pictures were drawn fifteen years ago, you may think them out of date. I will therefore quote from our latest chapters on tuberculosis.

Medical Diagnosis, by Anders, published in 1911, page 762, under "Incipient Phthisis." "The patient usually complains of an increased sense of languor, weakness, and moderate but progressive loss of weight. He may also experience chilly sensations at different times during the disease. The appetite is poor and fatigue and dyspnea follow every SLIGHT EXERTION, and the patient has for months, probably years, been unable to take food rich in fats. A distaste for fats is a highly significant symptom. Not infrequently gastric disturbances—e. g., anorexia, with nausea and possibly vomiting after a night's sleep, epigastric distress, eructation of acid substances, and flatulency—are among the EARLY SYMPTOMS, and indeed it is often for these that the patient consults the physician, believing that he is suffering from gastric disease. Occasionally slight, pleuritic pains are experienced, and if PROSTRATION IS WELL MARKED, there is PRONOUNCED SWEATING AT NIGHT. Cough is a common symptom, although in many cases it is but slight and may be accompanied by but a moderate amount of glairy expectoration."

Page 763: "Slight fever is ordinarily present at some time during the 24 hours, and in certain cases chills, followed by exacerbations of temperature and profuse sweating, are present; it is in this particular class of cases that the disease in a measure simulates malaria."

If this chapter is not late enough to prove my contention that we are still looking at the Hippocratic picture, I will quote an authority whose book is still warm from the press.

Tyson's Practice of Medicine, Sixth Edition, Revised and published April, 1915. Under symptoms, page 228: "The onset of tuberculosis of the lungs is by no means uniform. Notwithstanding the fact that its insidious nature is well recognized, its initial stage is often overlooked. The victim is scarcely appreciably ill. He may have lost flesh and strength continuously. He may even say that he had no cough, while close questioning will ascertain that he has had a slight

hacking cough for some time, worse in the mornings. Soon the symptoms are plainer, there is EVIDENT WASTING, and intermittent fever, a BRIGHT EYE and the COUGH with EXPECTORATION is a conspicuous symptom. Yet during all this the patient is cheerful and denies that there is much the matter with him. In another instance the individual is subject to colds, he takes cold repeatedly, and each attack while passing away, yields more stubbornly than the previous one, and finally one comes that persists. There is daily fever which abates to return again, EMACIATION is evident, and the BRIGHT EYES and BURNING CHEEKS AND NIGHT SWEATS again attest the ARRIVAL of this dread disease."

Given this picture, the men in the street can make the diagnosis. With these teachings before them, physicians will not even suspect early tuberculosis. If we are to detect this disease in its incipiency, these chapters must be rewritten; the picture they now present must be turned to the wall. It is just as consistent and less dangerous, to wait for the hair to fall out, the throat to ulcerate and the body to scab before making the diagnosis in syphilis.

Let us refer to the definition of an incipient case, let us get before us the fact that a tuberculosis patient does not, at the beginning of his illness, look bad or often feel really sick. The diagnosis should be made before the patient is obviously ill. He should in no way differ in appearance from a perfectly normal individual. I recently examined a young woman who weighed 216 pounds and found that she had active tuberculosis in both lungs. Her only complaint was that she felt bad and was tired every day.

Dr. Cabot charges that 98 per cent of us can not find anything abnormal in the lungs of our incipient patients. If this is true, and I do not doubt it, let us look for the reason. Again I refer you to our teachers, to our text book authors. Osler, page 246, under auscultation: "On the other hand, there are cases in which the earliest sign is a harsh, rude respiratory murmur. On deep breathing it is frequently to be noted that inspiration is jerking and wavy, the so-called cog-wheel rhythm; which, however, is by no means confined to tuberculosis. With extension of the disease, the respiratory murmur is harsh, and when consolidation occurs, whiffing and bronchial. With these changes in the character of the murmur, there are rales, due to accompanying bronchitis. When softening occurs, they are louder and have a bubbling, sometimes a characteristic clicking quality."

Practical Medicine, Thompson, page 257: "Dry crackles, or subcrepitant rales are also an EARLY sign, which vary in coughing and at the end of deep inspiration. They may be coughed away entirely

at first or become more moist. Later, loud bubbling moist rales, widely disseminated, are heard, which should be tested in different phases of respiration and by coughing."

This is what we are taught to listen for. I graduated eleven years ago and I was taught to listen for rales, gurgling sounds, metallic tinkles, signs of cavitation; in fact, "Alexander's Ragtime Band," and if I did not hear them, I considered my patient's lungs clear. These signs are produced by marked ulceration and softening. As a rule, when this condition is reached, our patient is doomed. At this time, we may, perhaps, prolong life; but the chances for perfect recovery are indeed very uncertain. In my judgment, this teaching accounts for our inability to detect the slight departure from the normal respiratory murmur heard in the lungs of incipient patients. If we are taught that measles is characterized by a cutaneous eruption, we will, in its absence, withhold the diagnosis.

I shall now consider the microscope as a diagnostic agent in early tuberculosis. The first part of 1915, I endeavored to find out what per cent of incipient patients showed bacillary sputa. I wrote to every individual and organization from whom I thought it probable to get this information. The National Association for the Study and Prevention of Tuberculosis stated in substance, that it was impossible to get any definite information on this point, owing to the fact that most doctors refused to make a diagnosis in the absence of positive sputa; and concluded by saying that possibly 40 per cent would show germs. The report from The Boston Consumptives' Hospital stated that 75 per cent of their cases were diagnosed before there was either cough or sputum. This is nearer as it should be. It was stated before The Southern Medical Association at Richmond, Virginia, (1914 meeting) that 35 per cent would show positive sputa. To average these reports, gives us 33⅓ per cent, in whose sputa we would find the bacilli. Now, if this is even approximately correct, it follows that in 66⅔ per cent of our early cases, we can not rely on the microscope, because in so doing two-thirds of our patients will pass to the advanced stages before having the diagnosis made. Withholding the diagnosis for a positive sputa and waiting till our patient "looks like" he has tuberculosis, is more fatal than Sydenham's injunction to "ride and rough it" as a cure.

Why do our physicians wait for germs in the sputa? Osler says: (Page 257) "So ESSENTIAL is the examination of the sputum in the EARLY diagnosis of phthisis, that I would earnestly insist upon the more frequent employment of this method. There is no excuse for its omission, since if the practitioner has not command of the necessary technique, there are laboratories in many parts of the country at which

the examinations can be made. EARLY detection is of vital importance, as the successful treatment depends upon the measures taken before the lungs are extensively involved."

It is easy to find the physicians support, however fallacious it may be, in refusing to make a diagnosis when there are no germs in the sputum.

Before the appearance of germs in the expectoration, there must be (as a rule) extensive ulceration, softening and breaking down of the lung tissue. To save our patients, and to check the spread of the disease, the diagnosis must be made and treatment begun before this condition is reached.

As a serious matter of fact, our authors to the contrary, notwithstanding, every case of tuberculosis should have the diagnosis made before there is softening, and therefore germs. It is worse than tragic to permit a large per cent of our tuberculous patients to reach the practically incurable stages before making a diagnosis. Within a comparatively recent date, the diagnosis of tuberculosis was considered equal to signing the patient's death warrant; and if we wait for a positive sputa, wasted form, bright eyes, burning cheeks, and night sweats, its meaning will remain unchanged.

If, as it appears, very few of us can detect anything abnormal in the chests of our incipient patients, and we can not rely on the microscope for early findings, what then may we do to find these cases at an earlier date? As I see it, we should here apply the question of common sense and the fever thermometer. What then are the common sense symptoms for which we must look, and upon which our opinions must be based? Let us bear in mind that the early symptoms are, as a rule, toxic in character. They are due to absorption. The most common symptoms are:

1. Fatigue, an unreasonable fatigue, without sufficient exercise to produce it.
2. The feeling of being "run down," a persistent state of feeling bad.
3. An appetite without edge, a persistent indifference to food.
4. Loss of energy and mental tone.
5. Indigestion or slight loss of weight.
6. Slight morning cough or tendency to clear the throat.
7. Chest pains, usually between or below the scapulæ, pains aching in character.
8. Reflex hoarseness.
9. Rapid pulse, 80 or above.
10. Persistent subnormal morning temperature.
11. Afternoon temperature elevation, 99 or above.

These are among the earliest symptoms and when they persist or persistently recur, no other diagnosis is justifiable until we can POSITIVELY eliminate tuberculosis. It may be urged that the early symptoms are multiform, and therefore more or less confusing. This is true, but when persistent, they tell the story.

There are a few other symptoms, sometimes early, that must not be overlooked. A hemorrhage from the lungs, slight or severe, should be considered tuberculous in origin unless we can prove otherwise. An idiopathic pleurisy means tuberculosis in 95 per cent of all cases and should not be dismissed as intercostal neuralgia or rheumatism.

With the continuation of any of the above symptoms, our suspicion of tuberculosis should be thoroughly aroused. With this in our minds, we should go thoroughly into the patient's history; personal, family, and environmental. Those who know most about this disease, put environment above heredity. Without the seed the disease can not develop. If the history shows that our patient tires from a usual day's labor, that he persistently feels bad, that his appetite is below par, that he suffers from chronic indigestion or symptoms of lagrippe, bronchitis or a cold, or has been exposed to tuberculous people, we should take his temperature and pulse at seven, ten, twelve, two, four, and eight each day for a week. If his morning temperature is persistently subnormal, below 98, and his afternoon or evening temperature is elevated, 99 or above, and his pulse goes above 80, we should not hesitate to make a diagnosis of tuberculosis. It is said that any two of the symptoms given in Norris' Quartette justifies the diagnosis. His four symptoms are:

1. Rapid pulse.
2. Slight afternoon temperature.
3. Slight loss of weight.
4. Slight cough.

These symptoms are more significant, more reliable in tuberculosis than periodic chills and fevers are in malaria. To sum up: A rapid pulse, a subnormal morning temperature with afternoon elevation; the sense of feeling bad, and fatigue before the day is over, is tuberculosis unless there is indisputable proof to the contrary.

As a preventive measure in tuberculosis, the early diagnosis stands first. If every case of tuberculosis should be discovered before the victim begins to throw off germs, and vigorous treatment instituted, the spread of the disease could be reduced at least seventy per cent or more. A tuberculous subject *cannot* convey the germs to others unless his case is an open one, and every case should be discovered before it reaches this stage. When the disease is not discovered before reaching this

point, it is because the patient does not consult his physician early enough or the doctor fails to find it when he is consulted. The discovery of every case of tuberculosis before it reaches the infectious stage, would, in my judgment, do more toward preventing and eliminating this disease than everything else combined. As a preventive measure, early diagnosis stands at the head of the column. It is a physical impossibility for tuberculosis to be conveyed from one person to another before the period of germ elimination is reached. What an enormous responsibility this places upon the members of the medical profession.

In closing, let me beg that we make our attitude towards tuberculosis one of eternal suspicion. The "White Plague" is everywhere. It is the most common, the most frequent of all diseases. The finding of our early cases is the general practitioner's burden, and if he will depend less upon the stethoscope and the microscope and rely more on common sense and the fever thermometer, he will find a much higher per cent of his early cases and thousands of human lives will be saved annually.

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DISCUSSION.

Dr. M. H. Fletcher: I wish to say that we have present with us Dr. J. Allison Hodges, of Richmond, and Dr. R. L. Payne, of Norfolk. These gentlemen from a neighboring State are honorary members of this Society and will be expected to take part in our deliberations without being invited particularly. If other members know of visiting gentlemen here we would be glad to have them made known.

Dr. L. B. McBrayer: I want to thank Dr. Thompson for that paper and to say that for the present I believe he has read to us a page that should appear in every text book that is published.

It is not an easy thing to make a diagnosis of incipient tuberculosis by an examination of the lung. Dr. Minor will tell you it is, and it is to him, because he does not do much else, but the general practitioner hardly has the time that it takes to make a careful physical examination of the lung. I stated the other day that I thought it was worth as much to a man, and to a patient, to make an early diagnosis of tuberculosis as it was to operate for appendicitis. One of the leading sur-

geons of the State, Dr. Royster, who was present, agreed to the statement, but there is no general practitioner in North Carolina, nor is there a community in North Carolina that cannot use the clinical thermometer in these instances. There is no community but what has some individual with sufficient intelligence to learn to read the clinical thermometer with very little instruction, and while it is difficult for the physician, without the aid of a nurse, to get a proper temperature record, he could leave a thermometer and have some good woman in the neighborhood to make the record for him, covering any length of time that he desires, whether covering several days or several weeks, and I trust that especially in our State he will profit, and I know we will, by this splendid paper of Dr. Thompson. Again I thank him.

Dr. R. F. Yarborough, Louisburg: I would like to ask Dr. Thompson what weight is placed on continued low pressure?

Dr. J. W. Squires, Charlotte: About six months ago I had the pleasure of hearing Dr. Dunham report some experimental work on the study of the tubercular lung by means of the Roentgen ray. He was very enthusiastic on the Roentgen ray signs of tuberculasis. If these signs are as reliable as he reports, it seems to me that a close coöperation of the Roentgenologist with the practicing physician would be extremely valuable in diagnosing tuberculosis. I would like to hear Dr. Thompson say something concerning the Roentgen ray in the diagnosing of this disease. I realize that Dr. Thompson cannot speak on every phase of this subject, but as I am a Roentgen ray man, I would like to get an expression. Often I am asked what value is the Roentgen ray in the diagnosis of tuberculosis. I think it is of sufficient value to demand its employment as a routine in the study of the lungs.

Dr. K. P. B. Bonner, Morehead City: I very much enjoyed Dr. Thompson's paper on the early diagnosis of pulmonary tuberculosis, but it seems to me that this is rather a bad policy to separate the four important, what I regard the most important, means for the early diagnosis. As a matter of fact, it seems these four means are common sense, the thermometer, but in addition the stethoscope and the microscope are important, too. In thirty-three per cent of the cases in which we find tubercular bacilli, it backs us up. On the other hand, the fact of the absence of it does not necessarily mean that it is not tuberculosis, and for that reason I do not find it bad policy to use all four of the means. Evidently these four aids should all be invoked in early diagnosis and not arraigned against each other.

Dr. W. L. Dunn, Asheville: It seems to me that this excellent paper of Dr. Thompson has so fitting a character, but on the other hand, I don't know but that there is something that to a certain extent casts a reflection on the men who have been our masters. Don't let's belittle such men as Osler, the men who have made possible really the greatest advancements perhaps in the science of medicine. I understand perfectly well the Doctor's position is not to do that.

It must be very difficult within the small confines of a text book article to give a definite picture, at the same time saying this is an exception, that is an exception. I feel that in the picture in this very excellent paper that the Doctor has written of early tuberculosis, that after all he has left the most important things to the common sense. If we no not use an immense amount of common sense we will have everybody tubercular. We must be careful. We are missing our early cases of tuberculosis on every hand, but don't let us make the mistake; don't let us forget that in our enthusiasm to get these early cases, that if we don't use a very large measure of common sense we will be going to the other extreme, which for the individual case, may not be so bad, but as a whole, may be very disastrous. The Doctor has emphasized common sense, and that is just as important as is the fever thermometer, as the symptoms that he has mentioned. This is one of the most important papers. I know of nothing that is going to have greater attention than such papers as this, but don't let us make the mistake, that of the things above mentioned, above everything else is common sense. We need common sense more than most anything else. It is no wonder that 98 per cent of the men cannot make an early diagnosis of tuberculosis with the stethoscope. There are no physical signs. It is before the physical signs. The signs are not so definite that even the men who are expert like Dr. Thompson, Dr. Minor, and Dr. McBrayer, can make a diagnosis with the stethoscope alone. It takes time and common sense. You are too eager to make your diagnosis. You want to make your diagnosis in fifteen mniutes. Sometimes it takes a week, sometimes two weeks, to determine that a patient has tuberculosis. I have seen hundreds that would take days and days to make the diagnosis. I think the work is so largely confined our family physician must be content to give time and use a sufficient amount of common sense, or we may make a mistake that is almost as effectual as missing a case.

It occurs to me that we general practitioners run the risk of getting ourselves into a very serious predicament. I am not able to make accurate diagnosis of tuberculosis with the stethoscope in its early stages, and my experience teaches me that there are experts who fail to be able

to do this very thing. I have in mind a patient of my own in whose case I had already made the diagnosis with the microscope, and who was at that time in a western town in the hands of an expert, being treated for this malady, and being of a curious turn of mind, he went into the office of one of the most noted physicians of Asheville,—he sits within the sound of my voice,—and said: "Sir, I would be glad if you would examine my lungs." "Certainly I will do so. Take your clothes off." He went up one side and down the other, thumping him. He said, "I find no trouble. I would like to know if you will come back tomorrow and bring a specimen of your sputum, and I will examine it under the microscope." Of course, he did not return as he already had it. The doctor under whose case he was, sent word back he found it on the right side. It turned out it was on the right side.

I find I am very much in harmony with Dr. Thompson's paper. I believe if we are wide enough awake we can find sufficient information, but the trouble is right here. If we make a diagnosis and say to our patient, "You have got tuberculosis," then the law requires us to report it to Dr. McBrayer. If the patient has not tuberculosis, he enters a suit against me for damage among his people. He says, "You have made me a pariah in my neighborhood and I resent it, and I am going to sue you for damages." Dr. McBrayer gets me if I don't report, the man says he is going to have me prosecuted, so I find myself in the unenviable position, "I am damned if I do, and I'm damned if I don't."

Dr. C. L. Minor, Asheville: When I have examined a case and found it in examination negative, I still wish to study it longer before drawing any conclusions; for valuable as a physical examination is, it is only part of the measures we must follow to make a diagnosis. For the general practitioner it is generally much safer to trust to a carefully taken history and a study of the symptoms of the case for one or two weeks at least, than to a carelessly made physical examination, to which sufficient time is rarely given. In any case, in early cases one physical examination cannot possibly make a diagnosis.

If a patient comes into my office for an examination, I am willing to go over him at once, if necessary, though I prefer to watch the case for a while beforehand; but I am not willing to express a final opinion. I am willing to say, for instance, that I do not find evidence of tuberculosis, but I always make it plain to the patient that this in itself is not enough to exclude the existence of tuberculosis, and I am not willing to give a diagnosis right off the bat.

Next, in taking a history, it is essential to take a written history, careful in every detail, and if the history is positive in pointing towards

tuberculosis, be very careful in rejecting such a diagnosis because of a dubious or negative physical examination.

Dr. I. W. Faison, Charlotte: As an internist and a general practitioner I want to stand here and thank publicly Dr. Thompson for coming 1,800 miles to deliver, to my mind, one of the best medical papers that it has ever been my pleasure to listen to. (Applause.) I feel that I am in the position that Dr. McMullan has put us, "Damned if we do, damned if we don't."

Dr. Cyrus Thompson: His phraseology is hardly good. It should be "Between hell and the fireworks."

Dr. Faison: I want to thank Dr. Thompson because he has been between hell and the fireworks.

It is in behalf of the general practitioner that I am on my feet. I thank Dr. Thompson heartily again for putting it in the range of a medical man, whether he has a stethoscope or not. Men view the stethoscope differently. They interpret differently. Anybody can read a thermometer, whether under the tongue or in the rectum, he can read it. I believe every temperature should be taken by rectum, especially if you want a specific reading. We can dodge these people and we can dodge Dr. McBrayer, too. You can have tuberculosis and know it is tuberculosis, still not make the diagnosis, and know enough not to put yourself in the position that the other fellow can sue you. A great many people have had tuberculosis and gotten well without the diagnosis, and a heap of them are dead after the examination.

Dr. Graham: Dr. J. Allison Hodges, of Richmand, is also here. He needs no introduction. He has devoted his life to tubercular diagnosis. I move that Dr. Hodges be invited to speak on this subject.

Dr. J. Allison Hodges, Richmond: I thank the gentleman heartily, but I don't need to have a motion made to allow me to speak before the North Carolina Society.

I wish to say that since I have been called on, I will take great pleasure in discussing one feature of this subject, but it would give me pleasure to first extend the floor to Dr. Patterson, if he is present.

Dr. Patterson: I have nothing to say. I yield the floor to Dr. Hodges.

Dr. Hodges: I would not take the time of the Society, and out of courtesy to Dr. Thompson, I think he should have the time.

I wish to say I enjoyed the paper very much indeed and that there is nothing more notable in the great advances in the technical and scientific knowledge on this subject than the comparison of this meeting, discussing here today tuberculosis and its needs with one that was held in a hall just below here thirty-one years ago at a former meeting of this Society. I am sure that we will be delighted to hear again from Dr. Thompson, but I wish that he would take the opportunity to differentiate between the comparative value of common sense and the clinical thermometer in the early diagnosis. If he will remember, a large number of cases, such as neurasthenia, some conditions of slight lesions of the urethral tract, some septic infections, etc., have a slight temperature in the afternoon, and it is such cases I would have taken up, but I believe he is entitled to the whole time.

Dr. J. M. Templeton, Cary: I don't think it is necessary to close the discussion because we have to give up the hall. I think this is the most important paper that the North Carolina Medical Society will discuss. We can adjourn at 12 o'clock and make it up this afternoon.

Dr. Cyrus Thompson: I agree with Dr. Templeton that the paper ought to be discussed, that these gentlemen ought to have an opportunity to speak upon it, and that Dr. Thompson ought to be given ample time. The fact that the watch makers say it is 12 o'clock does not make it 12 o'clock at all. The Congress of the United States does not stop by the clock when public business presses. It just simply turns the hands of the clock back and makes the clock say what it wants said; and we are on just as great a question as commonly confronts a National Legislature. Just let your watch go. We don't believe it is right any way.

Dr. S. E. Thompson: I certainly appreciate the most liberal discussion given my paper. More than this do I appreciate the interest you manifest in tuberculosis. Not long since, I was talking to a gentleman who had been in tuberculosis work for fifteen years. He said, "You cannot get doctors to listen when you talk about tuberculosis. I have gone before medical meetings on different occasions and when the chairman would announce that the next paper would be on tuberculosis, the doctors all over the building would reach for their hats and begin to disappear." This condition is changing. Doctors are becoming more interested in tuberculosis everywhere, and the papers on this subject today are more practical and less theoretical than they were in the past.

Dr. Dunn seems to think that I should not criticize our text book authors. I did not present my paper from a critic's standpoint, but you have in your State a gentleman (Dr. Cy. Thompson), who has evidently

convinced you that the Thompson family believe in free speech. If Osler, Tyson, and Anders are wrong, and we can prove that they are wrong in their teachings, we believe in saying so. At the same time, we realize these are remarkable men and have done wonderful work, and are still doing splendid service. I recognize as much as any one their transcendent ability, and that they have reached an eminence I shall never attain.

It was suggested in the discussion that in dealing with the question of early diagnosis, we should always be conservative. This is true. The doctor who is not conservative is more or less dangerous in any field of medicine. The thing I wish most to take out of your minds, is the picture of tuberculosis previously held. I wish to impress on you that when a man's tuberculous lesion first begins that, as a rule, he looks as well as he ever did. This is the time we must suspect and find it, if we expect to do the greatest possible good for the patient and stop infection in his community. If I have succeeded in doing this one thing, if I have impressed on you that you must not wait until your patient looks like he has tuberculosis, I shall consider my paper a success. I am not familiar with the attitude of your doctors toward tuberculosis, but in the majority of States, in fact, every one I have investigated, the doctors, as a rule, do not suspect tuberculosis until the patient looks it. For two thousand years the diagnosis of this disease was based on the appearance of the patient.

I realize that, as a rule, it requires time to make the diagnosis in early cases, and I recommend this in my paper. I have examined patients in whose chest I could find little or nothing, but who were suffering from unmistakable symptoms of tuberculosis, proven by subsequent developments.

I wish to thank Dr. McBrayer, Dr. Hays, your Secretary, and Dr. Fletcher, your President, for their kind invitation to be with you on this occasion, and I assure you the welcome accorded me here has been as hearty and as warm as I could wish.

THE DIFFERENTIAL DIAGNOSIS OF TUBERCULOSIS.

P. P. McCain, M.D., Sanatorium, N. C.

Nothing aside from prevention is so important in the fight against tuberculosis as an early diagnosis. But in spite of its importance, only about fifteen or twenty per cent of the one and a quarter million cases

in the United States are diagnosed in the incipient stage. This is due not so much to the fact that patients don't apply for diagnosis and treatment until the disease is past its incipiency as to the failure of the profession to make the diagnosis until the patient is beyond the curable stage. This statement is corroborated by the experience of other sanatorium workers, and it is all the more serious when a close study of the situation reveals the fact that this failure to make an early diagnosis is due very largely to carelessness, to a failure to employ all the ordinary methods which are within the reach of every physician. The four essentials in diagnosing tuberculosis are a careful history of the case, a proper temperature record, a sputum analysis and a physical examination.

Ford[1] has made a very painstaking investigation of the methods used in diagnosing tuberculosis in the first 1,000 patients admitted to the Gaylord Farm Sanatorium. He found that they had consulted 1,940 physicians, and that only 7 per cent of this number made a chest examination, took the temperature and examined the sputum.

It is with the hope of stimulating the profession to greater vigilance and more painstaking efforts in locating early tuberculosis that I have chosen the differential diagnosis of tuberculosis for the subject of this paper.

But before taking up my subject proper, I wish to emphasize the need of and the correct use of these ordinary means at our disposal for differentiating tuberculosis from other diseases.

An accurate history is very important, and a synopsis of the most prominent symptoms and of the course of the disease should always be recorded. Some authorities claim that a good history is of as much value as the physical examination. Oftentimes one will obtain a history of hemorrhage, pleurisy, anal fistula or other symptoms, probably dating back for years, which are in themselves almost pathognomonic of tuberculosis.

In early tuberculosis the sputum examination rarely reveals the tubercle bacillus. Sanatorium records show that from 70 to 80 per cent of incipient cases either have no expectoration or show a negative finding. So that unless it is positive, a single sputum analysis is of little diagnostic value. The physician who will rule out tuberculosis because of one negative sputum examination is criminally negligent of his patient's life. But it is of extreme importance that whenever any expectoration is present it be examined, because a positive finding will confirm the diagnosis. And in case of a negative report, it cannot be emphasized too strongly that at least five or six examinations should be made on successive days and the procedure repeated every month as

long as the expectoration continues or until the bacilli are found. Our State Laboratory of Hygiene, under the competent supervision of Dr. Shore, will make the examination free of charge, and the profession is urged to avail themselves of the opportunity it offers.

There is nothing in all the realm of medicine more characteristic than the subnormal or normal morning temperature with the afternoon or evening rise in active tuberculosis. To such an extent is this true that the thermometer, properly used, is all that is needed in the large majority of cases to make a diagnosis. It is only natural that tuberculosis should often be confused with malaria and typhoid fever when the physician has no record of the temperature save at the time of his daily afternoon visit. If he would spend only a few minutes in teaching someone in the home how to take the temperature and have it recorded every two hours, the characteristic curve in tuberculosis would make clear the true nature of the disease.

No chest examination is worthy of the name unless the patient is stripped to the skin above the waist line. The examination should be systematic and the various methods of inspection, palpation, percussion and auscultation should be applied each in its turn to the whole of the chest. One frequent source of error consists in having the patient only open his shirt instead of removing it and in limiting the examination to the front of the chest. If there were a likelihood of one's house being on fire, who would be satisfied with anything short of a thorough search of the whole house, that the fire might be located and extinguished before the flames should become uncontrollable? The victim of tuberculosis has not simply his property, but his life at stake; and can we as guardians of his health and of his life, put our consciences at rest until we have made a careful search over the whole of his chest, both front and back, and investigated every possible focus of infection?

The most important feature of the chest examination, and the one most frequently neglected, is to have the patient cough. It is during the deep inspiration following the cough given at the end of expiration that adventitious sounds in tuberculosis are most frequently elicited. Oftentimes this cough will reveal rales in early tuberculosis when all the other findings are normal.

Let me repeat that the difficulties arising in differentiating tuberculosis from all other diseases is usually obviated by a careful use of these four methods which are within the reach of everyone. It will be taken for granted in the references to these various methods in the following pages that they are made use of as outlined above.

Tuberculosis is probably more often mistaken for malaria than for any other disease. This is especially true in cases of early tuberculosis

in which the cough is not pronounced and in cases in which the most noticeable symptoms are anorexia, lassitude, slight loss of weight and strength, slight fever and perhaps chilly sensations. The diagnosis of malaria in such a case is easier and more agreeable for the physician, and it satisfies the patient, for the time being, at least. Yet this is the most inexcusable of all mistakes in the diagnosis of tuberculosis; for no case of questionable symptoms should be called malaria until the parasites are found in the blood. It is distressingly common for patients coming to sanatoria for tuberculosis to give a history of having been treated for malaria oftentimes for months when no blood examination had been made and when their condition had been steadily progressing beyond the stage at which the disease could be cured or arrested. It may require repeated examinations, but the parasite in every form of malaria can almost always be demonstrated.

The State Laboratory of Hygiene will make the examination free of charge and will send instructions, when this is desired, for obtaining the blood.

But even aside from the blood examination, it should rarely be very difficult to differentiate the two diseases. A temperature record will reveal the characteristic subnormal morning and elevated afternoon or evening temperature in tuberculosis. In typical cases of malaria the temperature preceded by the chill and followed by the sweat is just as characteristic, and even in atypical cases it can usually be distinguished from that of tuberculosis by its greater irregularity.

The presence of cough and expectoration, even when repeated sputum examinations fail to show the tubercle bacilli, adds weight to the evidence in favor of tuberculosis. The sputum should, of course, always be examined, and a positive finding will make clear the diagnosis. A careful physical examination will usually reveal a pulmonary lesion in tuberculosis, while in malaria the chest will be clear but the spleen will be enlarged.

The therapeutic test is at times of value in excluding malaria. Osler says that any fever which resists quinine properly administered for four or five days is not malarial in character. But quinine may lower the fever in tuberculosis also, so that the test should be considered only an aid in the diagnosis.

Malaria and tuberculosis often coexist, and even an unmistakable diagnosis of the one disease should not blind us to the existence of the other.

Uncomplicated bronchitis, either acute or chronic, is one of the easiest of all diseases to diagnose. But there is so frequently a tubercular process present also that extreme care should be exercised in handling every case to insure against overlooking a coexisting tuberculosis.

Brown[2] expresses it correctly when he says, "In all cases of chronic bronchitis of whatever kind, the most important question is whether the condition is not a variety of or at least a combination with tuberculosis."

In simple bronchitis, both acute and chronic, the severity of the cough is out of proportion to the constitutional symptoms. In the chronic form there is rarely any fever, and in the acute form, it usually lasts only three or four days. In spite of the annoying cough and abundant expectoration, the patient's general health continues fairly good. He loses little weight or strength and his appetite and digestion are unimpaired.

Physical examination in bronchitis reveals a great variety of sibilant and sonorous bronchi, and oftentimes also both dry and moist rales scattered over both sides of the chest, both front and back, with a tendency to be more numerous at the bases; while there is, on the other hand, in tuberculosis, a greater tendency for the lesion to be localized, unilaterally and situated at the apices, the rales being fine or medium coarse in character. Unlike tuberculosis, too, bronchitis rarely causes any change in the symmetry of the chest, in the percussion note, in the vocal resonance or in the respiratory sounds.

Thorough and oft-repeated examinations of the sputum must be made before tuberculosis can be ruled out. The sputum should also be tested for albumin. Its presence is strongly suggestive of tuberculosis, while in chronic bronchitis it is never found. This is a test which any physician can make in his office and should be in more general use.

There will be an occasional case in which even after all the ordinary methods have been properly employed for making a diagnosis there may still remain some doubt as to whether or not tuberculosis is present. Under such conditions the X-ray and probably the tuberculin test should be used.

It is frequently very difficult to differentiate broncho pneumonia from tuberculosis, and especially is this true when it develops in the course of or follows influenza, acute bronchitis and other infections. And it is in acute tuberculosis, in which the temperature has a tendency to be continuous, where the greatest difficulty lies in differentiating the two diseases. But even in this form the morning drop is more marked than in broncho pneumonia. The latter is more common in children and the aged, while acute tuberculosis is more common in young adults. Since it is positive in miliary tuberculosis, the diazo reaction will at times clear up the diagnosis. The sputum examination and the course of the disease are at times our chief reliance in making a diagnosis. Brown[2] says that broncho pneumonia in an adult should always be considered as possibly tuberculous, even when sputum is absent.

The careless physician might easily mistake active tuberculosis for typhoid fever. If he takes the temperature only during his afternoon visit, if he makes no blood or sputum tests, and makes only a superficial examination of the chest, the picture in tuberculosis is not very different from that of typhoid. But a careful employment of these procedures will, in chronic tuberculosis practically always differentiate the two diseases. And in view of the fact that the dietary is so different, it is most important to make the diagnosis as early as possible, since the forced feeding in tuberculosis may prove fatal to a typhoid patient, while the restricted diet of typhoid fever may allow a patient with tuberculosis to become progressively worse.

The most careful physician will often experience the greatest difficulty in differentiating typhoid fever and miliary tuberculosis. The greater irregularity of the temperature, the more rapid pulse, the increased respiration rate and the more marked cyanosis will all point to miliary tuberculosis. A blood culture, the Widal test and the sputum analysis may give the needed light. An examination of the spinal fluid may show the presence of the typhoid or tubercle bacilli and an examination of the eye grounds may show choroid tubercles. Fortunately, miliary tuberculosis is rare and we are not often called on to distinguish between the two diseases.

In influenza there will be an occasional case in which the recovery will be slow and in which the physical signs may persist in the chest much longer than is usual. In view of the fact that influenza often causes a latent tubercular focus to become active, it may be very difficult to tell whether the signs are due to influenza alone or to an awakened tuberculosis. But such a case should be regarded with grave suspicion and treated as tuberculosis until the temperature curve, repeated chest and sputum examniations and the course of the disease make a definite diagnosis possible. In afebrile cases it may be necessary to resort to the tuberculin test.

Bronchiectasis is comparatively rare, but it may simulate chronic tuberculosis with cavity formation. In bronchiectasis the cavity is usually nearer the bases or in the upper part of the lower lobes behind, and in tuberculosis it is more frequently near the apex. Bronchiectasis is usually unilateral and cavity cases of tuberculosis almost always have lesions in both lungs. The general symptoms are much less marked in bronchiectasis, fever as a rule being absent. The sputum is raised largely at intervals and is very abundant and foul smelling. On standing it separates into three layers, an upper of dirty froth, a middle of muddy looking serum and a lower of thick sediment. Even when bronchiestasis is

undoubtedly present the sputum should at intervals be examined repeatedly for tuberculosis since they may coexist.

It used to be considered that asthma and tuberculosis were antagonistic, but this is now known to be a mistaken idea. Either disease may develop in the course of the other, and they often coexist. The sputum should be carefully examined for tubercle bacilli in every case of asthma, and between the asthmatic attacks the chest should be thoroughly searched for possible tuberculous foci.

In pulmonary syphilis the history of the initial lesion, the presence of lesions elsewhere, the therapeutic test of the iodides, and the Wassermann reaction will serve to differentiate it from tuberculosis. Even when tubercle bacilli are found in the sputum, every patient who gives a luetic history should have a Wassermann made so that if active syphilis is also present, both conditions may be treated together.

Pleurisy with effusion and pneumothorax are so nearly always of tuberculous origin that they should be treated as such. Lobar pneumonia, pulmonary malignancy, lung abscess, infarct, gangrene, actinomycosis and other rare conditions may in some respects simulate tuberculosis, but time does not permit their discussion in this paper.

Since tuberculosis is many times the most common of all diseases, and since it is responsible for one-tenth of all the deaths and about one-third of all the sickness in the human race, let me urge in conclusion that the profession adopt an attitude toward the great white plague of eternal vigilance and suspicion, and always eliminate tuberculosis before making any other diagnosis.

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ON THE PRESENT TENDENCY TO NIHILISM IN DRUG THERAPEUTICS.

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The greatest and most significant fact in the history of modern medicine is the application to its problems of the scientific method; the method which investigates, observes and proves before it accepts anything as truth, and which is always seeking for the ultimate causes of

phenomena and deducing Nature's laws from observed facts and not from theoretical considerations. It is the development of this spirit which has raised our profession from the level it occupied in the days of the Barber Surgeons of the Middle Ages to the proud place which it holds today, and which, especially in the past half century, has brought the science of medicine to formerly undreamed of heights.

Originally entirely an empiric art, little attention was given to anything but therapeutics, and that therapeutics based at its best on a mere empiricism, and at its worst on plain superstition. Its medicinal remedies were often composed of substances which had behind them not even experience, but were given like tiger claws, which were supposed to be beneficial by imparting to the patient the strength and qualities of the animal from which they came. Had medicine not been able to escape from this thralldrom, it could never have developed, never have advanced one step into the realm of Nature's secrets, and it is hard to over estimate the loss to humanity which would have occurred had we thus been deprived of the discoveries with which modern science has enabled medicine to bless mankind.

While all down the centuries from Hippocrates onward, there were individual great men who had a vision of what might be attained, the new scientific era in medicine was enabled to develop as a result of the work and writings of that great genius and wonderful intellect, Francis Bacon, who laid down so clearly and convincingly the basis of inductive philosophy and pointed out the necessity of founding all opinion on observed facts. This man's service to medicine and to all science can never be overestimated, and his statue should be in the hall of every medical society.

"The beginning of all knowledge," cries Bacon, "is doubt." And in the realm of his medical studies, the physician must always doubt until rightly observed facts, properly interpreted, finally justify belief. From Bacon's day (1560 to 1626) onward, the demand that all knowledge be based only on observation has become more and more insistent, and from his time began the collection of that vast mass of carefully digested knowledge which is modern science and of which medicine is so important a part. Thus, as a result of his thoughts, we have evolved from the undiscriminating attitude of the Middle Ages, which accepted any explanation, however impossible for the cause of any phenomenon, however ill observed, and based its knowledge on deductive reasoning, until today our profession is submitting itself more and more to the discipline of science and rejects, or accepts with reservation, all statements not scientifically corroborated.

In the Sixteenth Century men were willing to accept without investigation the fact that the Peruvian Indian used the bark of a tree successfully to cure chills and fever, and thus we learned to use "Peruvian bark," an untold blessing to humanity, and one of the best examples of that useful empiricism, from which has sprung so many of our best remedies.

In the Ninteenth Century the scientist Binz was not content with this clinically proven fact until he demonstrated the paralyzing effect of the alkaloid of that bark, which by that time investigators had isolated, on motile protoplasm, and then, when later Laveran discovered the plasmodium which causes malaria, (this very name came from a false deduction) men *knew* why the Peruvian Indian cured his sickness with the bark and our therapeutics of malaria became truly scientific.

Again, in the olden days men were glad to produce sleep with Poppy juice, Henbane and Mandragora, and did not too much worry themselves with inquiring how they worked; in the Ninteenth Century the active principles of these and many other hypnotic drugs have been discovered, or are being investigated; we have studied their actions, their chemical formulæ, their pharmacology, and one chemist, the great Liebreich, from his knowledge of its molecular structure, predicted that Choral Hydrate should have hypnotic action, which he proved clinically. Such examples show clearly the difference between the therapeutics of the Sixteenth Century, full of superstition, dominated by authority (which last indeed our profession has not yet escaped from) and that of the Twentieth Century, questioning everything, accepting nothing until it has been proven to the last experiment and controlled by a repetition of the tests. The old-time doctor, and indeed not a few today, was a pragmatist. That "it worked," according to his or some other man's judgment, was all that he asked, or cared to know, about a drug; the modern doctor-scientist, taking as his motto *"Casus rerum cognoscere,"* is unsatisfied unless he can delve into the fundamental facts that lie behind that "working" and can hold up to mankind the hidden causes of things.

Our profession, always conservative, always slow to recognize and adopt new truths, a conservatism and slowness which is most fortunate in a calling that deals with human life, has at last come to realize that medicine is a science as well as an art; demands scientific proof for everything, and is indeed tending to go to the other extreme and to forget that medicine is also an art as well as a science.

The general effect of this scientific spirit is most happy. It has been a blessing to the doctor and to his patient. We now know where once we guessed; we diagnose accurately where we formerly surmised vaguely.

We base our therapeutics very largely on proven facts, where formerly we were empiricists. But, as in everything else which is good and great, there has come with this great progress a tendency to carry things to extremes, which has its disadvantages.

The aim of pure science is the search for truth. To avoid being led into error in that great search, it is skeptical of all that cannot be absolutely proven, and in the absolute sciences, such as mathematics and astronomy, this is essential. But, in a science-art like medicine, the wonders which science has revealed to us have made us forget that it is and will always be partly an art, and that, unlike mathematics, it can never hope to reach a day when it shall be based on absolute science, when all empiricism shall have been banished, and when we shall dwell continuously in the cold, clear light which streams from the place where Pure Truth is enthroned.

Certainly, in the present condition of medicine, while we bow reverently to the dictates of real science, it is impossible, in its therapeutic branch at least, to demand of every remedy that it justify itself by unimpeachable experimental proof of its value, and were such a demand enforced, there would be left to us few remedies which we could use.

In recent years, however, the growing demands of science have been such that many of the profession are unwilling to admit the utility of any remedy which cannot be backed up by laboratory proof, and this has created an excessive degree of distrust of drugs in the profession, which therapeutic nihilism we find everywhere. Some of our best and most scientific medical schools are training doctors who have little or no faith in any drugs, and as skepticism is destructive and not constructive, sterile and not productive, the effect of these nihilists upon medical therapeutics has been, I believe, most unfortunate; and their attitude may well be only less harmful to the profession than was the unlimited faith and the polypharmacy of our predecessors, who accepted unproven the mere statement of some physician, or even laymen, that such a drug would do such and such things. Such an attitude of extreme therapeutic doubt is, I believe, unwise. We must not go too fast, and though we may indeed dream of a day when our faith in the action of every drug in our pharmacopœa shall be based on laboratory experiments, it is certain that such a day is yet far off. The number of really scientifically proven drugs is still few, and for a long time to come we must trust chiefly to careful bedside observation by well trained men, which will always remain the final test of any drug, although after all it is but empiricism, though a very noble sort of empiricism and first cousin to science.

In medicine, however interested we may be in the discovery of truth, the final aim must always be the relief of suffering, the prolongation of life, the prevention and cure of disease, and we must never let ourselves be so carried away by enthusiasm over scientific investigation as to forget this final aim.

When the desire to be scientific, which too often turns into the fashion of being scientific, breeds, as it can in some men, a scorn for all that is not strictly scientific, it leads very soon not to a broadening of our outlook, as it should, but to a narrowing of it. It takes us away from the path of truth and clouds our vision by a dangerous self-satisfaction; a smug belief that we are being scientific, and brings its owners back insidiously to that worship of authority, which in the Middle Ages prevented any intellectual advance, and from which mankind was freed by the skeptical, investigating spirit of the renaissance.

How well indeed have men compared the path of truth to the swinging of a pendulum; how the pendulum of human thought swings through the arc from the one extreme to the other, and for how short a time do we ever occupy that happy middle point, equally removed from either extreme? The facility with which scientific methods can be applied to the problems of pathology, etiology and diagnosis, and the greater difficulty of applying them to the problems of therapeutics, accounts for the greater advance of these former branches of our profession; and it is no wonder that some of our greatest and most influential teachers find, therefore, their chief interest in diagnosis, and are skeptical of therapeutics. Believing that there is nothing much that can be done to cure disease, they are prone to leave the patient to that wonderful *"vis medicatrix naturæ,"* which so often and so well supplements our all too feeble therapeutic efforts.

In an art in which it is so hard to be sure that the results gotten are really the outcome of the measures we adopt, it is very easy to cry, *"Post hoc ergo propter hoc,"* and so easily can this old logical error creep into our medication, so hard it is to be sure that a given therapeutic effect is really the result of the use of the drug prescribed, so hard is it to exclude other possible causes, that it is usually impossible to convince such skeptics that any drug has any real effect. This type of physician is often seen in the German hospitals, where, after every refinement of applied science has been used in making a beautifully correct and keen diagnosis, the patient's natural desire for some therapeutic effort is quieted by a little Compound Tincture of Cinchona, and he is left to the powers of Nature for a cure, while the diagnostician seems to actually long for a chance for an autopsy to prove the correctness of his diagnosis.

While good therapeutics must be based on good diagnosis, equally a diagnosis which cannot lead to a purposeful, effectual therapeusis, is of little avail save to aid in prophylaxis. If the doctor is to be successful in helping his patient he must command an effectual therapeusis, and to do so, he must have faith in his ability to help the patient, not merely because of the wonderful psychological and physical effect which hopefulness has on the sick man, a hopefulness which cannot possibly be successfully initiated where it does not exist, but in order that he may be able to mobilize his knowledge and to apply it for his patient's benefit.

Therapeutic skepticism paralzyes all the doctor's efforts. He must have faith in his measures if he is to get results. The patient is not helped by the man who shows his little faith and acquaintances with drugs by hemming and hawing and saying in a doubtful, helpless tone, "Well, we might do this, or we might do that," all the time showing unconsciously to the patient that what he means is that we might as well do nothing. The sick man needs a doctor who earnestly believes that he can do something, and who sets actively to work to do it. If you doubt that helplessness and skepticism paralyze effort, recall how the virtue has left you in some desperate case when you have at last been forced to admit to yourself its hopelessness. As long as you believed that there was something you could do, you could bring hope and help to that sick room; you could work and fight, however desperate the case, and could, at times, bring victory out of defeat; but when that faith was gone, your only function was to register the hour of death and to comfort the family.

Let us indeed laugh at and avoid the polypharmacy of a past generation of doctors. We may justly ridicule their terrible mixtures, so largely based on inaccurate deductions, hearsay and traditions, which were poured down helpless patients' throats; but we have cause to be anxious at the helplessness and hopelesness of too many men in our profession today who have been taught to distrust all drugs, unless they are vaccines or serums, which can be scientifically tested, and who, when they have made a diagnosis with skill and patience, are unable to suggest anything positive to be done. Vaccines and serums are some of the most wonderful triumphs of modern medical science, the conquest of diphtheria is enough to justify our profession to the world for all time; but every doctor who wants to be able to help his patients must also have a thorough knowledge of, and faith in, those older and clinically well proven remedies from the animal, vegetable and mineral kingdoms, which have saved so many lives in the past, and rightly used, will do so in the future. By degrees, more and more of these older remedies will have their laboratory testings, which are so desirable; but we would be

foolish indeed to reject as unworthy of our use many drugs, whose value to us has been proven by years of bedside experience, because the laboratory worker cannot prove their utility. Let us not forget that medicine made great advances and did wonders in healing before the pharmacological laboratory was developed. Indeed, one of the glories of modern medicine, our victory over smallpox by vaccination, was founded on purely empirical work, though the routine of the observation followed by Jenner in his study of cowpox was scientific; and while today no intelligent doctor denies the efficacy of vaccination, no one has yet demonstrated its method of action, nor can we do so until the elusive organisms causing smallpox and vaccinia have been discovered and studied, as they unquestionably will be. Meantime we do not reject vaccination because its secret has not been uncovered any more than doctors refused to use Peruvian bark before they knew quinine, or how it acted.

While honoring the pharmacologist, and waiting eagerly for the results of his experiments, let us not think no drug worthy of honor until he has passed upon it. What drug has had more abundant clinical confirmation of its value in all those conditions of intestinal putrefaction and fermentation, and resultant gall duct catarrh, which we call "biliousness" than calomel, yet the pharmacological laboratory tells us that it is not a cholegogue, and now many say that "biliousness" is not a clinical entity, and that calomel cannot help our patients in that symptom complex of dizziness, headache, foul tongue and anorexia, etc., etc., which is so common in springtime. Shall we then at once give up the use of calomel, or shall we rather be pragmatists, and guided by common sense and a vast amount of bedside observation, continue its use to our patients' benefit though we cannot prove to the confirmed medical skeptic that it is the calomel and not suggestion which so uniformly brings us good results, and removes this disagreeable chain of symptoms?

No sensible doctor will hesitate long in such a case, or will throw over an old and tried therapeutic friend because it cannot bring with it laboratory credentials. After all, if he is convinced that a drug, in the modern slang, can "deliver the goods," it is not only his right, but it is his duty to his patient to use it. There are many other remedies which have so far failed to pass the laboratory test and in which yet the careful bedside worker has cause to have faith.

True, I can hear the pseudo-scientist, or the neophyte in the mysteries who has not yet learned reverence for the old by his experience of the fallibility of the new, scoff at what I say, but the real scientist, he who has gone far enough on the great unknown sea of truth, whose navigation is the task and glory of science, to have acquired a reverence for all

truth, however discovered, rather than that iconoclasm which a little science so often brings, will, I am sure, be the last to sneer.

In science all careful observation is respected, and the bedside is after all the doctor's final laboratory and his ultimate test tube. What the doctor needs is not so much more laboratories as a more scientific use of his eyes and his ears, and his other senses, at the bedside, guided by the careful methods which the laboratory can so well teach.

What we need is a proper combination and correlation of the experiences gathered at the bedside with the experiences gathered in the laboratory; *but the final decision must rest with the bedside worker.* It may be difficult, or impossible, to prove scientifically that such and such a remedy has such and such an effect; and we must never relax our efforts to get such scientific corroboration of what the bedside has taught, or we will open the door to the old superstitions and empiricisms which did so much to hold back our profession, but I am not ashamed to claim that careful, intelligent, oft repeated bedside observation of the value of a drug by a well trained doctor without any laboratory assistance, is a proper and safe guide in therapeutics; and further that a scornful rejection of any results that are uncorroborated by laboratory tests, which we so commonly see today in our younger laboratory workers, is as unjustifiable as it is unscientific.

To give an example of my point. Some years ago a laboratory worker presented careful data to show that pituitrin was valuable in pulmonary hemorrhage. As I have many such to treat, I felt it my duty to give it a bedside test. When, after many careful tests, I found it did not help me, I ceased to use it, since to help my patients is my first duty. On the other hand, when a number of years ago a careful, trained clinical observer told me that he had found that large hypodermic doses of atrophine sulphate (gr. 1-33 to 1-25) would promptly check pulmonary hemorrhage, I gave it a trial, and found it rarely failed one. Since then many years of bedside proof have convinced me beyond the possibility of a doubt that there is nothing quite so effectual in checking the majority of abundant pulmonary hemorrhages as this drug so given, although the same laboratory which reported on pituitrin favorably reported on atrophine unfavorably. These are but two examples of which there could be cited many more. Unquestionably when a new remedy is suggested a discreet conservatism and skepticism is wise, but not such a skepticism as will preclude any investigation. Without such skepticism, with a mind too prone to take up and adopt each new remedy uncritically because it is the fashion, we would soon be overwhelmed with a mass of half-tried, or ill-tried drugs, and we would fall back into the condition of our profession in the early Nineteenth Century. But to

reject any remedy because it does not seem plausible to our minds is as absurd and unscientific as to adopt them without any investigation. Even old wives' remedies have in them at times elements of value, though I could not but be amused at a medical friend who made a point of collecting all the old wives' remedies of which he could hear and trying them on his patients. In the face of a bad hemorrhage I was once tempted to try such a one which we have often heard of, the application of ice to the testicles. The apparent effect was immediate and satisfactory, and since that time I have not hesitated to use it as a first remedy before the doctor can come; just like the use of salt, which in recent years has had excellent scientific corroboration. When, however, I mentioned this to a very scientific friend, he exploded with laughter and talked of it with scorn. I told him if he were really scientific, what he should do would be, not to laugh at it, but to test it and see if he could find a good reason for it. Who first proposed it I cannot say; no experiments, as far as I know, have ever been made as to its method of action, but I have had sufficient experience to teach me that when a patient is bleeding, and before the doctor can get there, it certainly can do no harm and often seems to do much good, hence I am not at all ashamed to use it. True, the remedy seems unusual and amusing, but we know enough of the powerful effects of reflex action, and of the great activity of the reflexes connected with the sexual organs, to be able to believe that there may well be a relation of cause and effect between the application of the ice and the cessation of the bleeding; and that, therefore, to reject it with scorn, is an unscientific attitude.

In the history of medicine innumerable drugs have been advocated and used; some for a short time, to be later dropped as ineffectual; others to become finally a part of our regular stock; others still have had periods of fashion and neglect, and, in later generations, doctors have discovered the value of some which were in earlier times rejected. Unquestionably there are far too many drugs and our pharmacopœa is over-burdened with many useless ones. Unquestionably polypharmacy is not a benefit to the profession, but I am also very sure that medicine will suffer if the present prevalent fashionable nihilism in drug treatment is to prevail. After all, at the bedside of some desperately sick patient, after the most accurate diagnosis possible has been made, after we have formed the most careful prognosis, there remains for us to fulfill the last and greatest duty of our profession—the formation of a rational, purposeful and effective therapeusis.

The only safe thing is for us to steer a middle course between an undiscriminating conservatism and an equally undiscriminating radicalism, and it is a plea for such a middle course that I would make to you

today. I know very well how dangerous a ground any doctor treads on who, in these days of science, dares to stand up and warn the profession against pseudo-science and an excess of skepticism, say that while real science is always right and must be followed, much that is called science today will be proven in a few years not to have been science; its devotees are not infallible; that its dicta, as given out by them, are not always final; and time has very often, with an indulgent smile, reversed them and shown their so-called proven scientific truths to be only the erroneous deductions of her fallible servants. Carried away as we all are today by the wonderful advances science is making, we need to go slowly lest our enthusiasm make us over shoot the mark, and I am very sure that such a word of warning as this is justified, that a little more faith in drug therapeutics is needed today by some of the very best men in the profession, and that there will be many good men and careful observers to say, Amen.

DISCUSSION.

Dr. R. L. Payne, Norfolk, Va.: Dr. Minor has given us a valuable paper—too valuable to pass over without discussion. The tendency of therapeutic nihilism is the greatest curse of modern medicine. It is true that our text-books on therapeutics contain much rubbish, handed down from the lore of old women and the day when *post hoc* too often was regarded as *propter hoc*. But it is also true that very much that has been established by methods empirical brings highest results when properly applied. I do not wish to be understood as decrying the methods of science but we must not forget that the human body is not a test tube and results obtained in the study of drug effects on animals do not always provoke similar reactions when applied to man. All of you know how often you have rescued cases of shock from impending death by the timely hypo of strychnia, and yet, one of our most accredited modern investigators tells us today strychnia will bring on a condition of shock. Do you believe it? Will you discard strychnia from your resources in the treatment of shock? No, you have tried it too often, too often seen the lagging heart respond to this whip and so proving all things, you "Hold fast to that which is good." The trouble is that now our colleges are not laying enough stress on the teaching of therapy. A rather large contact with recent graduates as a member of licensing board with hospital internes brings me to feel the average young doctor knows too little of the effect of drugs. Take the simple matter of purgatives. How rare to find a man who selects a drug because it will produce osmosis or stimulate the intestinal glands, or simply irritate the unstriped muscular fibre into activity. We are too busy now with problems of preventive

medicine and the revelations of pathology to recognize that the poor sufferer who has not escaped infection is entitled to some intelligent care and the pathologist must not be so anxious to prove his diagnosis that he overlooks the possibility of cure. I need only cite you the fact that the mortality of pneumonia is today greater than it was fifty years ago and to recall that fifty years ago pneumonia was actively treated, while today we talk about the self-limitation of the disease, content to let the victim fight out his battle or succumb. If perchance we do anything for him we combat the toxæmia, we make no effort to limit the exudate or stay the inflammatory process, or hasten resolution, and so your mortality grows and grows and grows because you do not know how to handle your drugs for its cure.

DANGEROUS PATHOLOGICAL CONDITIONS DUE TO PENT UP FOCAL INFECTIONS.

Drs. I. W. and Yates W. Faison, Charlotte, N. C.

Today I will discuss some of "The Dangerous Pathological Conditions Due to Pent Up Infection," (sometimes called rheumatism and arthritis deformans).

I will make this a semi-clinic, reporting seven cases that have come under my care, and through the kindness of Dr. J. W. Squires, will throw on the canvas the pathological conditions as shown by his X-ray machine at both the Presbyterian Hospital and at the Charlotte Sanatorium, Charlotte, N. C.

Case 1. Mr. A.—Young lad 12 years old. Splendid family history. For first time, October, 1914, he began to suffer with pain in right knee, which gradually and steadily grew worse until he could not walk. January 1, 1915, a diagnosis of tubercular knee was made and fixation treatment with plaster of paris at once commenced. This was persisently kept up till September, 1915, when he began to suffer similar pains in left knee. He was then brought to the Presbyterian Hospital, where I saw him. I had the plaster removed, an X-Ray picture of knee taken, which I show you on the screen. No disease of bone at all, except an atrophic condition of bone due to salt absorption. The cause of the condition then was the first consideration. Both of his tonsils were enlarged and diseased. These were surgically removed, also found a bad root of a tooth in right lower jaw. This was extracted and cleaned out. His confinement had made him pale. He was put on full diet, massage and walking exercises as soon as possible. In two days his left knee was relieved of pain, so he discarded one crutch, and in a few days the other, and used a stick for

some time. His right knee is still a little stiff, but he is in splendid physical condition.

Case 2. Miss C.—Fifteen years old and good family history. Came to Presbyterian Hospital with history of pains about her small joints for six months, also in her knees, ankles, fingers, and back of neck, with an eruption for four months all over the body, especially about the flexures of her joints, over abdomen and between her fingers. Appropriate treatment cured the eruption in four days. The joint conditions and eruption had been placed at the door of innocent uric acid. X-Ray showed no special arthritic lesions or tooth disease. Her tonsils had been removed, but high up under pillar on right side was a piece left about as large as the end of a thumb. This was carefully dissected out—was about the size of a large grape. Being opened, was full of pus. Her pains rapidly ceased and complete recovery followed.

Case 3. Miss C.—Twenty-nine years old; school teacher. Good family history. Three years before this she had an attack of rheumatism, so-called, lasting three months or more, which rheumatism never does. About a month ago another attack came on. She came to Presbyterian Hospital pale, anæmic, barely able to walk, with good deal of pain in her knees, elbows, back of neck along the cervical spine and both meta-tarsal joints. Had suffered with repeated attacks of tonsilitis. They had been removed, but not completely. Two tonsillar stumps, both full of pus, were carefully and completely dissected out. The X-Ray showed the peri-arthritic condition of joints and the bad teeth with pus pockets, which I show you on the screen. The arch of her foot showed to be in perfect condition. As the peri-arthritis did not give way and the pain stop as soon as she thought it should, she became restless and went out to Arkansas Hot Springs. There she found a doctor who told her she had flat foot and must wear an arch brace under her foot. This gave her some ease, of course, but will certainly add to her chances not to get well. She came back poorer, but no wiser.

Case 4—Miss C.—Forty-five years old. Tubercular family history. I could find no active tubercular conditions, though. She came complaining of persistent pains and stiffness in cervical spinal region and across the ileo-sacral joints. I examined urine and found it normal. Her teeth showed some beautiful work by a noted Northern dentist. He had gotten rid of the crowns of her right upper teeth and fastened screws down in the roots and put pretty crowns on them. The X-Ray showed, as you see on the canvas, the awful conditions of these roots and the alveolar sockets. The dentist in Charlotte took off the crowns, cleaned out the screws, and first tried to save the roots by filling them and then put a superstructure of teeth over them. The second picture shows the failure of such treatment. He then took out the roots and masses of soft bone, also a part of the alveolar process had to be removed. They rapidly healed and the pains left as the improvement progressed. She also complained of steadily losing her sight. This began to improve also, and after two months was good enough to cease to worry her. At the end of two months, in my office, she made the most startling statement. For a long time she said she had been depressed and worried beyond measure on account of always being sleepy; had given up theater going, church attendance—in fact, everything—and shunned the company of her friends. She had consulted eminent men in our profession in the largest Northern cities to no benefit, so she felt so helpless that she did not relate the symptoms to me, for which I

am grateful. "Now, doctor, I want to say that you benefited me beyond my hopes of this condition, and that without knowing. I now can stay awake, can go to any public assembly, to theater, to church, and enjoy the company of my friends like other people." How did this happen?

Case 5. Mr. D.—Merchant, 52 years old. Good family history. Between twelve and fifteen years of age he had a severe attack of rheumatism. I asked him if he recalls that during that time he suffered with toothache. He vividly recalled the fact; stated that he had two or three teeth extracted for the toothache; that his rheumatism soon got well; but, of course, in that day no connection was made between the toothache and his rheumatism. Now I think there was. He was then free from rheumatism until a few years ago. He has spent some time at the Hot Springs in North Carolina, showing no improvement. He then went to Hot Springs, Arkansas. Went through a series of sixty-two baths, with absolutely no benefit. February, 1916, he came to see me and went to Charlotte Sanatorium. I had his tonsils examined at once; both badly diseased and pus pockets through and under them. They were thoroughly and carefully dissected out. The X-Ray showed a marked peri-arthritis at the tip of right shoulder joint so he could not get his arm up. Four bad teeth with pus pockets and necrosis of alveolar process. The pictures of this condition I show you on the screen. These teeth were extracted and the processes treated and cured, and his teeth fixed by a very competent dentist. He was put on a full diet of every kind of food, with bar exercises for shoulder joint, to work in garden and store. His improvement has been wonderful.

Case 6. Mr. D.—Fifty years old; a mechanic. Was a very strong, active man until fifteen years ago. Was caught in an ascending elevator and almost crushed to death. Two years after this he began to complain of pains in his back. For six or eight years this went on, with increasing pains and with abundant pus in his urine. Two years ago or more he came to see me. He was then stiff and ankylosed all the way along his spine. Examination of urine showed so much pus that I sent him to Dr. J. W. Squires and had an X-Ray picture made of his kidney; finding his right kidney with its parenchyma and interstitial tissue almost destroyed, with the capsules full of stones and pus. The secretion test made and found the other kidney healthy, so the diseased one was removed. His health rapidly improved. From this focus the toxins were generated that produced the hypertrophic arthritis, or chronic spondylitis, or spondylitic arthritis deformans. The pictures, as shown on the screen, show beautifully the locking condition of the joints all along the spinal column. Who can doubt the fact now if this pus kidney could have been removed in time and before this fixation period had come on that this man, too, could have gotten well.

Case 7. Miss K.—Age 31. Professor in a noted college for women. In the spring of 1914 she began to suffer with pains in the joints of her fingers, ankles, and knees. The diagnosis of rheumatism was then made and so treated, with a reduced diet and stoppage of exercise. She steadily grew weaker and less able to move around. June, 1914, she came to see me. I must confess that at that time I did not really take in the situation and full effect of her sickness. Still under a full diet and massage and Bier's hyperæmic treatment, she improved, and went home in two weeks. January, 1915, she began to suffer more than ever with her joints. She wrote me, and I advised

her to go and have her tonsils examined and removed, if found diseased. In a few days she wrote me that her tonsils had been removed, but instead of improving was growing worse, but that aspirin would help her so she could bear it and she could not give up her work in her school. June, 1915, she came back to sanatorium with a diagnosis of arthritis deformans, with the prognosis that nothing could be done for her to benefit her; that she would eventually have to go to the rolling-chair, to be stiff and drawn in her hands and feet and totally unable to walk or care for herself, and eke out a long, unhappy and miserable life. She was now one of the most miserable, abject women I ever saw—a woman of fine birth and blood, with a generous education, a professor in a high-grade woman's college, just 31 years old, with apparently all hope gone and life not worth the living. I found both jaws so stiff she could not open her mouth to eat, but had to drink liquids, both elbows so stiff and painful she could neither dress herself, feed herself, nor comb her hair. Both knees and both ankles and meta-torsal joints so stiff she could scarcely walk; severe pains in her cervical spine and shoulder joints; weak, thin, and anæmic, weighing 91 pounds. The only thing about her at this time that could give you a ray of cheer was her hope. With all this, she, with her pathetic look and plaintive voice, said, "Doctor, do your best and give me a chance and I will get well." No doctor could have more incentives to do than I at that time. Since I first saw her, new ideas and hopes had entered my mind in these cases and I had waked up to the fact that things could be done. So I accepted the situation and began a formidable attack on her conditions. We finally got her mouth open so we could get to her tonsils, and found stumps left in both tonsils, both full of pus. These were carefully and completely dissected out and the foci cured. I then had X-Ray pictures taken and found her teeth in very bad condition, which I show you on the canvas. The upper right first molar was an old root with a screw in it and a crown set on it, the root decayed and pus all around it and the alveolar process necrosed, also the tooth just under it and one of her front teeth also very bad. These were extracted and kept clean and cured and teeth put back so as to do no harm. Now the work of getting rid of the peri-arthritis began in dead earnest. She ran a little temperature and good deal of pain still. I began with combined vaccines of streptococci, staphylococci and communis-coli (made at Lederle Laboratory) every other day, commencing with 40,000 and increasing every dose to 400,000. I think this benefited some. The fever disappeared, also the pains got better. I am not so sure today of how much they were worth. I gave her hot baths every day with doubtful benefit. Massage and exercise of joints did more good. I used the electric vibrator with some little comfort, but doubt any other special good. I gave her bitter tonics—iron, strychnine, and arsenic. I forced her feeding to 3,000 to 4,000 calories a day of every kind of food that she could desire. I used the Bier treatment applied above the knees and elbows, commencing with half-hour and increased it to eight hours a day, and did this during the night so I could make her walk about in the daytime. I commenced her walking at once, first between two nurses, then one, then a stick, and then alone. It was not long before she got out on the street and up town to moving pictures. The bright rays of life began to creep in and whip her to greater efforts, as well as me. The improvement was gradual, but wonderful. In two months she went home, able to dress, to feed and clothe herself. She began to gain weight and

spirits. A few days ago she wrote: "Today I am practically a well woman. Have not taken a dose of aspirin in six months. I weight 116 pounds. Practically free from all pain. I play tennis every day, the weather permitting. I can and do walk five miles on a stretch every day. I can mount my horse and ride wherever I please. I sleep like a child. I expect to go back to my college work in September." Was it worth the while?

CONCLUSIONS.

What does all this mean to us as medical men? You at once see that I have shown you cases of arthritis, but in another way. I am now persuaded that in just a little while in the future the nomenclature of these conditions will undergo very great changes. Even now does the word "Rheumatism" mean anything to you? It does not to me. I think I will live long enough to see the advanced men in medicine drop it. Rheumatic fever now takes its place, and even a better word than that can be used. The nomen chronic rheumatism ought to be discarded now because no such disease as that exists.

Arthritis deformans can be simply held to mean an anatomical distortion, but no more. It means nothing else. There are other forms of existing arthritis, but I will not have the time or inclination to mention them.

The old saying that holds good as to children, that no child is examined until you look well in the throat, is no better or truer than that no adult is thoroughly examined until you examine the teeth. If there are any doubtful ones, have X-ray pictures made, as I know you surely can go wrong by trusting only your eye sight. The time is now when the doctors must look after the teeth more than they do, and insist on certain lines of treatment by the dentists. Beautiful work is not always safe work, as you saw in my cases. They must open their minds and act as men, and when a root is diseased and can't be completely cured, they must be bold and honest enough to pull them out and not cover them over with a $15 crown and praise the beautiful work when the focus is made by him to ruin his patient.

I have shunned pyorrhea purposely in this discussion.

I feel I must say something to men who are removing tonsils. First, don't remove a tonsil unless it is diseased. If you do remove it, take time and do it as a regular surgical operation. Don't by carelessness and hurry cut the pillars or any of the anatomical tissue about it. Dissect out the capsule in its entirety, so no stump can be there as a focus for such awful conditions as I have shown you. Don't be weak enough or ignorant enough, if your patient comes back in two or three years for removal of the same tonsils to say that they have grown back. If you

will take time and dissect out completely the tonsil and capsule, the tonsil cannot grow back.

In Case 2, you see that only a small piece of tonsil was the focus. Case 4, the pus kidney was the focus. In all the others the tonsils and teeth both were the foci. A pus pocket in any other part of the body will cause the same results, whether in an old gall-bladder or old chronic empyema or a bronchiectasis.

DISCUSSION.

Dr. Arthur Pendleton, Raleigh: As we should go to Watts Hospital as soon as possible, I shall make my discussion very short.

Dr. Faison's experience with the patients that he has presented to us emphasizes the fact that so-called rheumatism is an infection. It has emphasized in a peculiar way the further fact that most frequently, perhaps, the original focus is an infected tooth socket, next the tonsils, although in my own experience, the sinuses of the nose have come second, the tonsils third, and the kidneys fourth.

We should never lose sight of the possibility of an apparent rheumatism's being either tuberculosis or syphilis, and these two diseases should first be eliminated. The history, together with the differential blood count, the Wassermann, and the X-ray will easily do this.

These cases show the necessity for finding the original focus of infection and draining, and usually this is all the treatment necessary. The use of bacterins in the treatment naturally comes up for consideration. My experience is that they do little good if the focus can not be drained, and are unnecessary if it can.

Dr. C. L. Minor, Asheville: One point I would like to bring out. After you have found the foci the foci should be attacked at once. In a certain case there were found some tonsils perfectly good and there were found some foci. The tonsils were taken out, looked perfectly healthy, a pain which had existed in the knee ceased at once. We waited three or four weeks and then we drew out the teeth, and for four days there was a complete recurrence of the old pain, which finally disappeared. It is very important to be careful, to go slowly and not to tackle too much of the job at one time.

Dr. J. T. J. Battle, Greensboro: This is a subject that is of far more importance than we are disposed to believe unless thoroughly investigated.

One of the most severe cases of rheumatism that I have seen was relieved by the removal of a tonsil. The tonsil seemed to be in almost perfect condition on casual observation, but scrutinizing closely, it was

found to be infected, and it seems to have been the cause of the whole trouble. A decayed tooth that has not been interfered with has sufficient drainage, but unless the dentist who fills that tooth renders it aseptic, he may be doing that patient a great injustice. I believe that the dentists understand that now, but I am not sure that they have been understanding it for very many years. It has been demonstrated that when the bacteria in a decayed tooth, originally doing no harm, is penned up in that tooth by a filling, they may stay there for months, and there is only one way for them to get out, that is into the general circulation. In their stay in this pent up condition they have become decidedly more virulent, and when the circulation does take them up, we are liable to have rheumatism, liver or heart trouble, appendicitis, gall-bladder troubles or diseases of any of the organs which these bacterial feel disposed to attack. I believe that keeping the mouths of the people in first class condition is the solution of preventing many cases of infectious diseases.

A young lady came to me some time ago with an inflamed ankle. The first question I asked was about her teeth. She assured me they were in perfect condition, that she visited her dentist twice a year. I examined her tonsils and teeth, which seemed to be in perfect condition. Further examination developed some tenderness in the region of the gall-bladder. So it was suggested that possibly the focus of infection was at that point. She went to a hospital for relief, and a skiagraph was made of her teeth, which showed an abcess at the root of one tooth. This one was extracted, and the trouble was relieved in forty-eight hours. This was two years ago, and there has been no return of the former impairment.

Dr. C. S. Lawrence, Winston-Salem: It would be impossible to cover very much ground on a subject like this in the few minutes time allowed to discuss it, but it is such an interesting subject I would like to mention one or two things in regard to it. First, the regularity in the occurrences of metastatic infections, for instance, in the Neisser infection of the urethra we look for the arthritis within from 18 to 21 days with great regularity, in streptococcic cases from 18 to 24 hours, and in cases of infection with less virulent organisms, the infections come on at a somewhat later date. I think that all of these infections are conveyed by the blood from the fact that in cases of an arthritis, the fluid when first aspirated is found to be sterile, but later on when the synovial membrane begins to break down and adhesions form in the joint, the fluid, when aspirated, will be found to contain the organisms. That would indicate that the organisms are deposited in the wall of the joint at first and are liberated into the joint cavity when destruction of tissue takes place.

The work of Rosenow has thrown great light on this subject, in that he has been able to isolate an organism from the gall-bladder wall in patients suffering with cholecystitis and has been able to produce the disease in the lower animals and isolate the organism again from the animal. He has been able to do the same thing in cases of appendicitis, etc.

I have enjoyed the paper much, indeed.

Dr. I. W. Faison, Charlotte: I will close by reading the balance of the paper. When I talk to you about rheumatism I don't think about it in the light of Dr. Lawrence and Dr. Battle. I do not believe it is the toxins that produce it.

THE ARTIFICIAL LIFE A CAUSE OF THE INCREASE IN DEGENERATIVE DISEASES.

Dr. J. T. J. Battle, Greensboro.

The artificial life, as it will be construed in this paper, means the use of anything which is not essential to the development of the physical man, and the best use of the faculties after development.

It is not intended that the most simple food should be selected and strictly adhered to, but that the appetite should be gratified whenever it does not call for anything that is known to be in any degree harmful. Good food fixed in a variety of palatable ways is not only good to look upon, but its pleasant odor and its delicious taste really make the mouth water, and thus increase the saliva to aid in its digestion. Every meal should be so prepared as to appeal to the ocular, olfactory and gustatory nerves, and in this way appeal to the organs of digestion rather than having to resort to supposed stimulants to aid digestion.

The man who is fully developed and should be in a position to digest what he eats, but a tobacco habitue, thinks, and with some truth, that his digestion will not be so good without his pipe, cigar or cigarette. As his digestive organs have become habituated to this stimulant, it is true that it is needed at this stage, so that after a meal his digestive organs are below par and they must be whipped with the stimulus that he can absorb from the tobacco smoke. While tobacco is mildly stimulating, soon the depressing influence comes on, the narcotic effect assumes control, and the man sinks a little deeper in his chair, and whiles away the time in a habit which is more or less harmful to himself and of no good to anyone else.

Tobacco smoke contains an appreciable quantity of pyridine, nicotine and furfurol, and smaller quantities of hydrocyanic acid and ammonia, and large amounts of carbonic acid. Furfurol has been shown to stimulate the secretion of the adrenalid glands; this at first raises the blood pressure, and the secondary effect is to lower it. Adrenalin has been shown to aggravate the symptoms of cardio-vascular diseases, and when given to an animal in excessive doses is said to produce lesions similar to arterio-sclerosis.

The poisonous effect of nicotine is well known, and fifty per cent of what was originally in the tobacco goes into the smoke. The claim that smokers and chewers do not contract disease as readily as others has not been proven, as the smoke is not antiseptic, and mold and fungus grow freely in solutions of tobacco of the strength which results from chewing. While the smoke is alkaline in reaction, it is not sufficiently so to overcome the bacteria-forming acid of the mouth. There is every reason that smokers should have cancer of the mouth more frequently than non-smokers, as cancer is caused by heat, poisons, injuries (which can be brought about by the pipe-stem), over-activity of any of the glands, or chronic irritation. All of these are caused by smoking tobacco. Dr. William Mayo says that from eighty to ninety-five per cent of cancer of the tip of the tongue, mouth and lips is caused by smoking.

The arthritic and rheumatic conditions are aggravated by tobacco, an over-use of which is often directly responsible for the symptoms, and we know that amaurosis is sometimes brought about by its excessive use.

That alcohol does more harm than good seems to be a conceded fact. It is the belief of the majority of the people, certainly in the Southern States, that this is the case; they have expressed their views at the ballot box, affirming this belief. This belief of the people in general is confirmed by the hospital experiences with inebriates and alcoholics, and it is thoroughly demonstrated in the laboratory that alcohol is not a food, as was once thought, that it is first a stimulant and then a narcotic. While it causes a subjective sensation of greater efficiency, it is fallacious, as experiments have proven the contrary; while the greater part of it taken into the body is oxydized; yet it does not repair or rebuild tissue. It depresses the vital functions, and the one who uses it goes into any form of sickness or surgical operation unprepared for the ordeal, and more readily succumbs than any other class of patients.

In this strenuous life, it is too often the case that men and women, wishing to keep step with the rapid-moving throng, whip themselves into line with this, and they are able to keep up for only a short time, as the result is always disappointing; and when the habit is formed they not only drop out of the line of the progressive march, but have

contracted a habit which they cannot break. It is a question of a short time until they are more or less incapacitated, having an hypertrophied heart, an atrophied liver, diseased kidneys, and chronic gastritis, and for years they may go on suffering, eking out a miserable existence. It is, however, useless to unfold the picture to an intelligent profession; yet too many of our confreres have given way to the subtle influence of alcohol, and our sanitariums have too many M. D.'s as patients. While they may be relieved, yet the degenerative diseases have set in, and the mortality is increasing at an alarming rate in the middle period of life.

Not only the alcohol itself does so much harm, but the deluded individual who takes a glass of beer, or wine, or some preparation of alcohol for his stomach's sake, to give him an appetite, or to aid digestion, on account of its benumbing influence on the sensory nerves of the stomach is unconscious of an overloaded stomach or an undigested meal; in this way the partially digested food is taken into the circulation, and the eliminative organs, particularly the kidneys, have to bear the brunt of carrying off this excess of partially digested compounds which in some instances are toxic. This not only sets up irritation and finally disease in the kidneys, but circulating in the system it affects the other organs, causing first irritation and finally the degenerative diseases.

As proof of the foregoing, insurance companies have adduced some incontrovertible evidence. After investigating thousands of cases where alcohol was used, it was demonstrated that one glass of whiskey or two glasses of beer a day caused an excess mortality of eighteen per cent.; where more than one glass of whiskey or two glasses of beer were taken daily, the mortality was eighty-six per cent in excess. In these classes Bright's disease, pneumonia and suicide were more than the normal.

A word as to the milder stimulants, which in turn too often lead to the use of the stronger. The constant user of the soda fountain drinks is under the control of a habit which is hard to break from, and while absolutely no good is experienced from these, yet being stimulating enough so that one glass calls for another, it evidently has its effect upon the nervous system, consequently causes a disturbance in its functioning power.

It is a very simple and easy task in a few hours to pick out among the girls, boys and adults of any town those who have contracted or are contracting the caffeine habit. It is a long step in the direction of stronger stimulants. Not only is the present generation's efficiency curtailed, but the coming generation is undoubtedly born with degeneracy of greater or less degree, either in the physical or mental or nervous systems.

It might be superfluous to speak of the use of drugs to an asso-

ciation of doctors; yet the patent fact that so many have succumbed to their use is sufficient excuse. An unfortunate circumstance connected with the practitioner who is addicted to the use of a drug is that he so often gives it to patients unnecessarily, and thus causes others to fall into this habit. Unlike the doctor who takes it himself, they are confirmed habitues before they are aware of their condition, and future immunity is exceedingly rare.

Numbers of people are drinking great quantities of water daily, many times more than the system calls for; and as the heart in its normal work is doing over one hundred tons of work per day, every gallon of water taken calls upon the heart to do additional work. This the heart responds to by undergoing hypertrophy, and the excess water drinker, if he continues, will have heart trouble, and if any arterial disease already exists, it will be decidedly hurtful. His kidneys have also been called upon to do extra work; and as it has been demonstrated that over-work causes degeneration, there is a possibility of injuring the kidneys. A generous amount of water is good, but too much is harmful.

Over-indulgence at the table is responsible for the heavyweights. In this class of people statistics show that those who are forty pounds or more over the agerage weight have a longevity four years below the expected. Diabetes, apoplexy, nephritis and heart disease are largely responsible for this decrease. Over-eating and indulgence in the extremes of heat and cold rapidly following each other are no doubt irritating to the stomach, and too often the cause of cancers. Hot coffee when brought to us at the table must be taken regardless of the temperature, for society demands that the old way of pouring it out in the saucer is not elegant manners. To do so would be a compound comminuted fracture of the laws of etiquette, and it must be taken hot, even if it does cause cancer of the stomach.

Indigestion and constipation are doubtless responsible for cardio-vascular and renal changes. These can be produced either by disintegration of the food by the stomach and intestinal juices or by the intestinal bacteria or by the toxins excreted by the bacteria.

During the past ten years the death rate from cirrhosis of the liver has increased fourteen and three-tenths per cent., Bright's disease eighteen and one-tenth per cent., apoplexy eighteen and eight-tenths per cent., organic disease of the heart thirty-nine and three-tenths per cent., diabetes sixty per cent., and disease of the arteries three hundred and ninety-six and three-tenths per cent.

Overwork and worry, in one class to provide the necessities of life, and in another to possess the luxuries, are responsible for a tremendous

toll in degenerative diseases and premature senility. While the span of life is being lengthened by controlling the preventable diseases, yet by correct living we can add in a few generations fifteen years more of longevity, and give to the individual a greater mental and physical efficiency. It is an established fact that moral, intellectual and spiritual growth will improve the physical, and wherever you find mental and moral defects there you find physical inferiority. Our present state of efficiency needs improving. For instance, if you take one hundred average healthy men at age twenty-five, in forty years, or at the age of sixty-five, thirty-six will be dead, one will be rich, four wealthy, and five will be supporting themselves, while fifty-four will be dependent upon relatives or charity.

We are under moral and economic obligations to the future generations that they shall inherit stronger constitutions and greater mental capabilities. Constitutional inferiority may be the basis of all diseases.

In conclusion, if we would improve the coming generations, it is our duty to avoid the excesses of all kinds, as excess in the ancestor is responsible for the stigmata of degeneration in the offspring.

DISCUSSION.

Dr. S. M. Crowell, Charlotte: I knew that Dr. Battle would have a good paper, but he has surpassed my expectations. He has said much of importance to us. Perhaps, at first thought the average man would not consider it of so great importance, but there is much in it and we should take warning from his message. I was especially impressed with his remarks in reference to the many so-called "soft" drinks. In my opinion for quite a while, they are doing much harm to our race. It is alarming, at certain localities, to see the amount of this stuff that is being consumed by men, boys, women and even little children. In excessive amounts we all know that they impair digestion, produce constipation in many instances, and otherwise deplete the health. Whether or not they contain cocaine products, caffeine, etc., it is not for me to say. I only have seen their detrimental effects in this direction. I wish to congratulate the doctor for having so good a paper.

Dr. P. H. Ringer, Asheville: Most things which we like seem unhealthy and a damper is put on our likes; our dislikes are put into the foreground. It is hard for a man who likes tobacco, caffeine and a drink to be told that each one of these things shorten his expectancy of life, reduces his efficiency, and militates against his health and happiness, and it is because of practical deficiency in this business world, calling for greater expenditure of brain, it is this increased efficiency in our modern

life that has brought about a corresponding inefficiency in our physical life. It is a fact that while communicable diseases are receiving the greatest amount of attention, the non-infectious diseases are slowly and insidiously pursuing their subterranean courses. Why is it? It is because, I believe, that these non-communicable diseases are contracted for a long period of years, not at one given period of time, and also because the curability, the setting aside of these non-communicable diseases, lies, not in a particular medical treatment, but beginning in middle life the setting aside and doing without the little individual things. We can all face the big things, but it is the little things that come along, the little individual ones, hardly noticed, but the sum total comes to make up a great part of our life. These things we set aside, at the time we do begin to cut down, but it is too late, the body is on the regressive road, and all we can do is to patch up.

SOME STUDIES OF THE RAT IN RELATION TO PUBLIC HEALTH.

Dr. J. B. Bullitt, Chapel Hill, N. C.

In words, as in apparel, fashion largely rules our choice. Today the word preparedness trips lightly from every tongue. This paper may be called a plea for preparedness along a sadly neglected line of sanitation. Two years ago, in this city, I read before our District Medical Society a short paper upon the rat as a menace to health. It was received with the attention and courtesy and compliments that are always accorded by the men of our profession to any essayist appearing before them. But the purpose of the paper which was to provoke discussion and to arouse interest in a campaign of rodent extermination was not in the least degree attained. A patronizing smile of incredulity was aroused by the prophecy that within two or three years bubonic plague would find its way into some of the Southern States. Yet it was only two or three months later when the small but significant outbreak occurred in New Orleans. Prompt action and liberal expenditure checked the threatened epidemic and many indulged the vain hope that the disease was eradicated. But in spite of the most vigorous measures, the infection among the rats has continued until today. Every few weeks an infected rat has been caught and in September of last year another human case occurred. The last case of rat infection was diagnosed March 16, 1916.

The total number of rodents examined in New Orleans up to March 18, 1916, is 336,776. Of these 282 have been found infected. During the present year ten cases have been diagnosed on the following dates:

January 13, 1916 (caught December 17, 1915); January 19, 1916 (caught January 4, 1916); January 20, 1916 (caught January 7, 1916); January 24, 1916 (caught January 6, 1916); February 4, 1916 (caught January 8, 1916); February 4, 1916 (caught January 25, 1916); February 21, 1916 (caught February 2, 1916); February 28, 1916 (caught February 10, 1916); March 13, 1916 (caught February 2, 1916); March 16 (caught February 29, 1916).

In California the last human case occurred in Contra Costa County in July, 1915. Rodent cases (all in squirrels) have been reported from California in the past eight months as follows Alameda County, July 12, 1915; San Benito County, August 14, 1915; Contra Costa County, November 12, 1915, and March 1, 1916; Monterey County, February 22, 1916 (2 cases), February 23, 1916 (3 cases), March 2, 1916 (3 cases), March 8, 1916 (2 cases), March 9, 1916 (1 case).

In all human probability the infection in New Orleans will remain for many years. It is also almost a certainty that sooner or later some wandering rodents will initiate other epidemics in other towns in Louisiana and Mississippi, from which the disease will spread through all the Gulf and South Atlantic States. There is also the ever present possibility of independent foci of infection brought by shipping into our other seaports. Should our troubles in Mexico assume large proportions, or should grave European entanglements arise, the resultant disorganization of our life will add greatly to these dangers.

For these reasons I make bold to urge upon your attention the importance of a well organized campaign against the rat.

In connection with some of my regular work I have been using a large number of rats in my laboratory, and incidentally have tried to gather some facts as to their economic and sanitary importance in our community.

Various investigators have estimated that the rat population of a community approximately equals the human population. This may be correct for the entire country, but I am convinced that in my own town (Chapel Hill) the number of rats vastly exceeds the number of human beings; and I believe this to be true of all our small or moderate-sized Southern towns. The impossibility of an accurate rat census is obvious. I have attempted, however, to make a crude census on our most popular residence street. Upon this street there are 28 homes, housing 108 persons. Three of these houses are rat-proofed and their occupants report no rats present. In regard to three others I have been unable to obtain information, but the remaining 22 harbor rats in varying num-

bers. A single night's trapping yielded 9 rats in one home, 5 in another, 4 in a third, 3 in a fourth; while one display of poison in a fifth resulted in 5 carcasses found and unmistakable olfactory evidence of other tragedies. In none of these cases was the extermination complete nor was there appreciable diminution in the numbers for more than a few weeks. In one of the University buildings I caught 32 rats in two days with no effect upon the apparent numbers. One cage trap at the University dining hall gave a catch of 12 the first night and 14 the second night. One trap at a small barn caught 7 in the course of a few hours and 8 more the following day. A comparison of these figures with the human population makes me confident that our rats outnumber the people not less than 3 to 1.

With such hosts of these undesirable citizens in very close though usually hidden association with us it behooves us to take thought of the morrow and to guard ourselves against their contaminating influences.

Many accusations of disease carrying have been made against the rat. Some are of mere academic interest to us though they afford interesting scientific study. In this category we may place rat leprosy, several types of trypanosome infection (Tr. Lewisi, Tr. Duttoni, Tr. Gambiense) and several forms of tape worm (Taenia Solium, Taenia Pisiformis, Taenia Taeniaformis, Hymenolepis Nana). Some of these infections are not transmissible to man; in the case of others the fact that we do not use rats as food bars their serious consideration; while the absence of the Glossina Palpalis from this country excludes sleeping sickness from our public health problems. On the other hand there is serious ground for believing rats to be important factors in disseminating infection with Lamblia Duodenalis and recent work done in Charleston justifies grave suspicion of their complicity in spreading amoebic dysentery. Since Lynch's paper appeared last December, I have examined the intestines of 54 wild rats in a search for the amoeba histolytica and its lesions. Though there was evidence of some inflammation in the coecum and colon in several cases I was not able in any of them to find the amoeba nor the characteristic ulcers. But since amoebic dysentery is all but unknown in this section of the State this negative result was to be expected.

Practically all rats harbor intestinal parasites. Out of more than 100 intestines examined in my laboratory in the past year only 4 proved free from worms. In many instances the gut was so packed with these parasites that it seemed hardly credible that food could pass the obstructing masses. In some there were six or seven different varieties. The total number was so great that I have made no attempt at identification of most of them. Hymenolepsis diminuta was found in 8 cases.

It may have been present in many more. Since this tape worm is communicable to man it enters into our indictment. How frequently it infects human beings in this State I cannot say. I have seen no cases myself and only two of fifty physicians with whom I have communicated have recognized its presence among their patients. But so often in treating such infections no attempt is made to identify the species of worm that it may be quite common though not recognized. The larval stage of hymenolepsis diminuta occurs in meal moths (Asopia Farinalis), in ear wigs (Anisolabis Annulipis) and in certain beetles (Acis Spinosa and Scaurus Striatus). These receive the infection from the feces of rats and in turn they contaminate human food.

Of late considerable interest has arisen over the reports of "Rat-bite Fever." The total number of cases has been considerable though I believe that less than 100 detailed histories have been published. Since these come from all over the world (Japan, England, France, Africa, United States) it seems reasonable to assume that if we look for these cases we will find them. The relative infrequency of rat-bite probably accounts largely for the comparatively rare occurrence of the disease. Furthermore many cases that have occurred have probably been mistaken for some form of septic infection. Since the mortality is moderately high (about 10 per cent) the disease merits serious thought. I have been unable to locate with certainty any cases in this State though I have received accounts of a number of attacks of illness closely simulating the symptoms of this disease.

Next to plague, and perhaps amoebiasis, trichinosis is the most important infection for which we must condemn the rat. Stiles terms him the "permanent reservoir" of the trichinella spiralis. The rat infection is maintained by his cannabalistic habits as well as by his penchant for feeding upon the scraps from slaughter houses and meat markets. The hog receives his infection by feeding upon rats or upon slaughter house offal, while human infection comes practically exclusively from raw or poorly cooked pork. After somewhat extensive inquiry and correspondence I have succeeded in locating very few cases in North Carolina. However among 50 rats caught in various localities in Chapel Hill I found the trichinella in the muscles of 3. Two of these 3 were caught in the barn of a negro on the outskirts of town. Incidentally this negro kept several hogs. One infected rat was caught about the kitchen of the University dining hall. Conjecture affords interesting possibilities.

Through the courtesy of one of our meat markets I have examined the meat of 65 hogs with negative results. In one case I thought that I found two calcified trinchinae, but was not certain of my diagnosis.

However, the microscopic inspection of pork is notoriously inefficient in locating this infection. While all the muscles may contain the parasites, frequently many muscles may be free and others heavily infected. Therefore negative results mean little. It seems probable to me, therefore, that a larger proportion of our rats are infected than my figures show—and with rats infected it is well-nigh certain that some of our pork is also infected and that human cases occur far more frequently than we suspect.

The statement that the American can be reached only through his pocket book is trite, but, perhaps, is none the less true. Therefore, in the absence of a plague epidemic or other sensational basis for our anti-rat campaign we may best reach the public through the rat's economic importance. I made a number of experiments upon the amount of food consumed by rats in my laboratory. For brevity's sake I give but one example. Twenty-five gray rats of various ages were kept in one cage and fed upon corn. A fresh supply of the grain was put in the cage only when they had entirely eaten that last given them. In a little over eight weeks they ate two bushels. This gives a rate of about half a bushel a year per rat, *i. e.*, a cost of fifty cents a year per rat at the present price of corn. The plan of feeding was then changed and a considerable quantity of corn was kept continuously in one compartment of the cage easily accessible to the rats. With this abundance of food available their wasteful taste was evidenced. So far as I could determine not a single grain was entirely eaten. They ate only the heart, *i. e.*, about one-fourth of the total grain. At this rate which corresponds more nearly with their methods of feeding in our barns it would cost $2 a year to support each rat upon corn alone. In feeding with fruit, cheese, potatoes, etc., the proportion of waste was much higher and the cost correspondingly increased. Even without considering the losses due to damaged books, clothing, etc., which often reach startling figures, we may safely conclude that the usual estimate of $3 a year for each rat's maintenance is well below the real cost. Therefore, if the rat population merely equals the human population, it may be said that this city (Durham) pays the rat an annual tribute of not less than $50,000, while the figures for our State will reach $6,000,000 or more. A recent article by a prominent teacher of economics (David Y. Thomas, University of Arkansas) gives the following table of American Waste from Inefficiency and Unpreparedness.

Losses due to tuberculosis	$330,000,000
Losses due to typhoid fever	50,000,000
Losses due to hospital mismanagement	50,000,000
Losses due to smoke nuisance	100,000,000
Losses due to cattle tick	50,000,000
Losses due to rats	360,000,000
Total	$940,000,000

This is "nearly enough to pay the running expenses of our extravagant government for a year." To us physicians it is at least surprising to think that the economic loss due to rats is greater than that due to tuberculosis. A small proportion of this amount would go a long way toward exterminating these pests, or, at any rate, towards greatly lessening their numbers and preventing their access to our homes.

After careful inquiry in my own town (Chapel Hill) I have been able to find but four homes and no business houses that are rat proofed. Only a few citizens make any determined effort to rid themselves of these uninvited guests and nearly all of these few limit themselves to trying to catch and kill the rats without attempting to build them out of their houses. There is no organized campaign along this line.

So far as I have been able to learn the only systematic work of this kind done in the State is that conducted by the United States Public Health Service in protecting the seaports against foreign invasion. Thinking that perhaps the county health officers might be doing some work upon this important matter I wrote a few weeks ago to the ten whole-time health officers in this State, making inquiry regarding it. Five have replied. None has an organized campaign. All report very little individual effort by their citizens. All estimate a high percentage of homes as harboring rats—the lowest estimate being 50 per cent, the highest 100 per cent. All report a very small proportion of rat-proof buildings—three of the five putting the figure at zero.

We can never hope for entire extermination, but a reasonable investment of time, money and labor can practically eliminate the rat as a public health factor and can yield a large return in financial saving. A successful fight, however, must be a systematic one, and must be conducted with brains and persistence. The most extensive trapping and poisoning are relatively futile unless combined with such construction of our homes, barns, stables, garbage receptacles, etc., as will practically exclude the rat from his food supplies and his breeding places. Only a hungry rat enters a trap or accepts poisoned bait. The average home can be practically rat-proofed in the original building for a comparatively small sum ($75 to $200). The interest upon such an amount is distinctly less than the average damage—real, though not recognized—

sustained from the rats by the household. A much larger sum is required to protect an old building. Indeed, here the cost often appears prohibitive, but there seems no valid excuse for the erection of any new building without the rat-proof feature.

A discussion of the detailed methods of rat elimination and the formulation of plans for such a campaign would be profitable, but time does not permit me to attempt it in this paper. We have our societies for the prevention of cancer mortality and our associations for the prevention and cure of tuberculosis and various other effective organizations looking toward the prevention of disease and the conservation of comfort, wealth and health. We see daily the wonderful results that they accomplish. A similar society for the extermination of vermin, though less needed than the great organizations referred to above, would nevertheless fill an important place in the great fight for the betterment of our civilization and the improvement of our health and happiness.

CRAIGIASIS—TWO PROBABLE CASES.

Dr. H. B. Hiatt, High Point, N. C.

In 1906 Craig[1] isolated an intestinal parasite which he named paramoebia hominis. In 1911 Doflein[2] thought that this parasite was not a true paramoeba and suggested that it be placed in a new genus. In 1912 Calkins[3] established the genus and named it Craigia.

MORPHOLOGY.

[The description and symptoms following are abbreviated from Craig[1] and Barlow[4].]

Life Cycle: In the amoebic stage, the organism reproduces by simple division as a typical amoeba for several generations, as long as conditions are favorable. It then encysts, and within the cyst are developed numerous small swarmers which, on escaping, develop a single flagellum; these reproduce by longitudinal division for several generations, after which the flagellum disappears, and the amoebic stage of development is again entered.

Beginning as a spherical body, 3 to 6 microns in diameter, with a finely granular cytoplasm and a poorly defined refractive nucleus, the young forms develop a single, very delicate flagellum, and move forward

in a jerky manner. When fully developed, the flagellate measures 10 to 20 microns in diameter; is spherical, slightly elongated where the flagellum arises, and consists of a finely granular cytoplasm in which lies a spherical nucleus having a well defined nuclear membrane composed of refractile granules. An accesssory nuclear body may sometimes be distinguished as a refractive granule or rod. The protoplasm of the flagellate stains very intensely. The nucleus is of the Vahlkampfia type; the nuclear membrane somewhat thin and composed of minute granules. The flagellum stains poorly or not at all. Division is by primitive form of mitosis. The nucleus and accessory body divide; then the flagellum, and, finally, the two individuals separate. After dividing for several generations, the swarmers lose the flagellum; develop amoebic motion, and enter the amoebic stage.

The amoebae vary from 10 to 25 microns in size, the average is 18 microns. At rest they are round or oval; when moving, very irregular, as several pseudopodia may be projected at the same time. When fully developed motility is very active, and progressive movement marked, and there is a sharp distinction between ectoplasm and endoplasm—the latter being very refractive, the former thin and veil-like. In motionless organisms and in the small organisms, in which motility is sluggish, there is no distinction between ectoplasm and endoplasm. This is also true of stained specimens. Bacteria, crystals, and red cells may be observed within the endoplasm. The nucleus can nearly always be distinguished, appearing as a refractive, spherical body, surrounded by a thick and more refractive nuclear membrane of granular consistence, or appearing like refractile rods arranged end to end around the periphery. The nucleus stains intensely and the morphology is similar to that of Vahlkampfia, the only difference being that the Craigia has a smaller karyosome. In some of the larger organisms, an accessory nuclear body appears as a minute bright glistening oval body, near or in contact with the nucleus. It stains a deep black with iron hematoxlon. Organisms undergoing division are frequently observed, the accessory nuclear body dividing first. The distinct nuclei are sometimes observed.

In the precystic stage, motility is lost; the organism contracts and expels all extraneous matter, and then rotates rapidly about its axis, sometimes for as long as an hour, but usually about 15 minutes, when a double cyst wall will have been formed, while the nucleus and accessory body are still to be seen. When fully developed the cysts are refractive, spherical bodies, about 15 microns in diameter, with a well defined cyst wall containing numerous very refractive spherical bodies, which eventually become the young flagellates. Both the cysts and swarmers stained so intensely that no fine details can be made out.

In 1915 Barlow describes a new species, Craigia migrans, and points out the difference in a life cycle:

"The life cycle of C. migrans differs from that of C. hominis, in that instead of dividing for a while as an amoeba, then encysting, forming swarmers, and dividing for a while as flagellates, each flagellate on attaining full development becomes an amoeba without dividing, and each amoeba encysts and produces a number of flagellates. This organism may have to be placed in another genus eventually." In other respects the life history resembles that of C. hominis. The young spherical forms measure 3m to 7m in diameter. The amœbic stage varies from 12m to 30m, averaging about 20m. There is no accessory nuclear body present. Encysted amœbae average about 18m. "The young swarmers are somewhat larger than those of C. hominis, the usual size being about 5 microns. The cysts, therefore, contain from 20 to 30 young forms. The most of the round forms in the cysts of C. hominis are about 3½ microns in diameter, and there are 40 or more in a cyst."

DIFFERENTIATION.

"C. hominis is distinguished from either E. histolytica or E. coli by its small size, the character of the nucleus, the presence of an accessory nuclear body, the structure of the cysts, and the production of swarmers within the cysts. From T. intestinalis, it is distinguished, in the flagellate stage, by its larger size, the absence of an undulating membrane, the single flagellum, and the spherical shape. In the amoebic stage, it is distinguished from the resting forms of T. intestinalis, which sometimes possess a very limited amoeboid motion, by the larger size and very active progressive motion, which never is observed in trichomonads. The differential points mentioned also serve to distinguish C. hominis from any entameba or intestinal flagellate hitherto described. Craig 1.)

"The patients complain of some lassitude, mild headache, more or less definite abdominal discomfort, or dyspepsia. Slight intestinal disturbances, consisting of moderate diarrhea, or of constipation may appear. Such symptoms may appear singly or in various combinations; they may continue for months, and one may doubt whether they are all dependent upon the intestinal infection. Occasionally the abdominal pains become severe, or there may be an outbreak of diarrhea, which causes the physician to examine the stools," when the parasite will be found with mucus or red cells.

"Advanced and chronic cases. In the advanced stages of the disease, the symptoms become marked. The movements become more frequent and usually contain mucus and frequently blood. Their number may vary from two or three in the morning to ten or fifteen or more, during

the day. There is aching in the back, and at times a sudden and intense desire to defecate. As the disease becomes chronic, loss of weight is progressive, and, finally marked emaciation may result. There is more or less anorexia, and indigestion and flatulence are common. (We did not find the indigestion and flatulence in our cases.) Another type of the chronic form is that in which there is nothing more than an intermittent diarrhea often intermitting with constipation."

Craig states that diarrhea is usually intermittent in character, coming on abruptly and subsiding in the same manner. Between the attacks the stools may be formed. In Barlow's[4] observations the intermission was seldom more than a week. In one case he reports an intermission of three months. In one of our cases the diarrhea was continuous. In the other intermission existed as long as ten months. Barlow remarks the only distinction in the stools of Craigiasis and entamibiasis is that in the latter severe hemorrhages occurred more frequently. Tenesmus does not seem to be as common or as severe as in an infection with hystolytica. Barlow notes, also, circumscribed pain and tenderness are encountered most often in the region of the pylorus, appendix, and sigmoid flexure.

COMPLICATIONS.

These are taken from Barlow's paper cited above. Abscess of liver. In his series of 56 cases of Craigiasis he had eleven cases of abscess of the liver, while at the same time 76 cases of entamebiasis only showed three cases of liver abscess, one case of pulmonary abscess, four cases of appendicitis, four cases duodenal ulcer.

DIAGNOSIS.

The diagnosis can only be made by finding the parasites in the feces. The swarmers are the most conspicuous objects imaginable, and doubtless have often been seen and regarded as cercomads or trichomonads, the amoebic forms having been taken for E. coli in the case of C. hominis, and for E. histolytica in the case of C. migrans.

The clinical diagnosis is almost impossible. In the description of symptoms the quotations are taken directly from an article by Strong, in a standard text-book upon entambic dysentery,[5] and apply equally well to Craigiasis, in fact they express the symptoms better than the original description which the writer reproduced, and, for this reason, I have taken the liberty of quoting them in extenso.

There is no doubt that many cases are unrecognized, cause long suffering, or even death, after being treated for various other conditions, or even sent to the operating table. It should be emphatically stated

that no physician does his full duty who fails to examine the stools of all cases occurring in the tropical or subtropical region, who suffer from any of the following symptoms; indigestion, diarrhoae, pain in the back, enlarged or tender liver or spleen, dry chronic cough, haemorrhoids, pain under the right scapula, or in the region of the liver; nor should any of the following diagnoses be made, until after examination of feces: appendicitis, cirrhosis of the liver, hepatitis, gastric or duodenal ulcer, or any variety whatever of enteritis or colitis.

Barlow concludes that the treatment resolves itself into either emetin hypodermically, ipecac internally, or a combination of the two. The first of our cases was a woman 45 who died two weeks after she came under our observation. This case occurred three years ago and because of the presence of swarmers in the stools a diagnosis was made of a cercomonad infection. The patient was assiduously treated with various astringents and antiseptics. She was having ten to fifteen stools a day containing mucus and blood.

Since we have seen our last case and studied it we feel sure the earlier case was one of Craigiasis.

The last case came under observation in November, 1915, and has been continually under care since then.

Miss H. P.—Age 18. Occupation H. W. Previously lived on farm. Complaint: grippe. Family history: mother and father both living; well. No history of alcoholism, malignancy, or tuberculosis. Past history: summer of 1912, while living in town and drinking water from a well, she developed a case of diarrhœa; not very severe at first, but continued to grow worse until she was having eight to ten stools daily, with blood and mucus. Some pain, not marked, however; good deal of backache and cramps in legs. Was treated at this time, but did not "have anything put in arm." She got better and the stools became normal again. Does not remember whether there were any other cases in the neighborhood or not. The next winter she moved to the country and was bothered at intervals through the next three years with recurring attacks of bloody dysentery, lasting for periods of from six to eight days to two and three weeks, but clearing up. When first seen she was suffering with a typical attack of influenza. Because of her complaint of a bloody diarrhœa and a high eosinophile count, an examination of stool was made at once and what was thought to be T. intestinalis found. Later in the day, upon examining same tools—about twelve hours after first examination—these T. had apparently lost the flagellum. There was at this time no amœboid movement, nor were there any nuclei or accessory nuclear bodies noticed. The next day another stool was obtained, and in this was found a small very rapidly moving body. The next morning another stool was obtained that contained both T. intestinalis and the amœboid bodies. This stool was kept warm and studied for forty-eight hours. The encysting stage was noted. The swarmers were seen and the amœboid stage observed all in this one stool. On this and the clinical symptoms the diagnosis was made.

This matter is called to your attention and these two cases reported today because, to quote Barlow again, "There is but little doubt that the chief source of infection is drinking polluted water. A patient may carry Craigiasis for months before seeking medical aid, but the infection, although beginning mild and insidious, is fully as dangerous as that of E. histolytica to the patient, and even more so to the community, as it is much more common for a patient with Craigiasis to remain a carrier for years than is the case in entamœbiasis."

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THE TREATMENT OF MORPHINE HABITUES.

Dr. W. C. Ashworth, Greensboro, N. C.

The treatment of morphinism belongs to the most painful chapters of medicine. It is signally unfortunate that so little study, observation and effort to interpret physical manifestations has been given to those unfortunates suffering from narcotic addiction. We have neglected their disease in its origin and subsequent progress and have formed our conception of them from fully developed conditions and spectacular end results. I have seen them during and after our fruitless efforts to relieve them; their tortures and poor physical conditions overcome their resolutions until they plead for and attempt to obtain surreptitiously, more of the drug. I have seen them exhausted, starved with locked-up elimination, toxic from self-made poison of faulty metabolism, worn with the struggle of concealment and hopeless resistance; semi-responsible beings, at present, or soon to be inmates of an institution offering custodial care. Most of our literature pictures them as weak-minded deteriorated wretches, mental and moral derelicts pandering to morbid sensuality, taking a drug to soothe them into dream states and give them languorous delight, regarded by the laity, and many times the profession, as so depraved that their rescue is impossible, and oftentimes unworthy of its attempt.

We have ignored or misinterpreted intense physical agony and symptomatology and regarded failure to abstain from narcotic drugs as evidence of weak will-power, or lack of desire to forego morbid pleasures. We have prayed over our drug addicts, reasoned with them, exhorted them, imprisoned them, treated them as insane and made them social outcasts; and have either refused them admittance to our hospitals or turned them out after inefficient treatment, with their addiction still fastened to them. They have fully realized our failure to appreciate their condition and to offer help for it, and have, after desperate trials with quacks, charlatans and exploited "cures," finally accepted their slavery, and by regulations of their drug and life, maintain unsuspected, as nearly normal existence as possible, or broken in mind and body, impoverished financially, have given up the struggle. A number of such cases are concealed as family skeletons in the home, others are in institutions diagnosed as cases of mental disease due to drug action or habit deterioration, based on inherent lack of mental and moral stamina.

I have at last realized, after nearly ten years experience in the treatment of drug habitues, that I am dealing with men and women who are sick of a definite diseased condition, and am finally convinced until we recognize, understand, and treat this condition and remove the stigma and moral taint from the cases in which it does not exist we will make very little headway toward the solution of our problem. It is a fact that narcotic drugs do afford a pleasurable sensation to many of those not fully addicted to their use, and that this effect has been sought by the mentally and morally inferior purely for its enjoyment, and in the same spirit that these individuals yield themselves to other morbid excesses and indulgences. This class, however, is greatly in the minority and self-eliminating, and I might add, seldom present themselves for treatment.

I have been endeavoring to search out and explain from the study of the individual addict and his corroborated testimony, and from clinical observation of his disease and the phenomena and symptomatology peculiar to addiction, to formulate a theory for their production which would give a rational basis for therapeutic effort.

I find in the literature on narcotic drugs very little as to their action or as to manner of production of symptomatology in those habituated to their use. This experience has been paralleled by some of my patients, for instance, physicians of high standing, for many years, secret addicts, and consequently zealous searchers for any information as to their affliction which might offer them hope of a cure.

The literature on narcotic addictions is notable for a persistent effort to interpret drug action in an addict by its observed action in normal

men and animals, attributing to supposed enjoyment, plus direct action of the drug, plus hypothetical mental and moral degeneration, the clinical picture of chronic drug addiction. I have observed that there is a class of drug habitues, if not a majority, in whom there is no mental or moral inferiority, often men and women of high ideas and worthy accomplishments whose knowledge of narcotic administration is in many cases first gained by withdrawal agonies, following the cessation of medication, who have never experienced pleasure from the drug, normal, mentally and morally, therefore, unquestionably victims of a purely physical affliction.

It has been my observation that routine treatment for all cases of any diseased condition means unnecessary suffering during the course of the treatment and vitiation of the results in many, if not a majority of those treated. Narcotic addicts are no exception to this rule. There must, be in each case, comprehension of intrinsic elements which accord with the clinical facts and finally a keen appreciation of their relative importance, and there must be competent interpretation of symptomatology if we are to place our efforts on a rational basis and modify our treatment to the needs of the individual patient. We must take into consideration the idiosyncrasies, temperament, moral and physical stamina of the individual if satisfactory results are to be obtained from our treatment. In other words, the personal equation of the patient must always be given due consideration as well as the influence of immediate environment. Drug cases are often extremely complex and difficult to analyze, therefore, for adequate treatment, the symptoms and their origin must be appreciated as they occur in the individual patient. We have not yet reached the satisfactory solution of our treatment of narcotic addiction. Any method of treatment which is open to scientific investigation and which can be carried through in any hospital where the usual dietetic and hygienic control over patients is exercised, therefore, deserves consideration.

I have been able during the last few months to obtain better results, with far less discomfort to the patient by substituting Pantopon or opium for the morphine and finally withdrawing the Pantopon. It has been my observation that the nervous system of most morphine patients gives up the Pantopon far less reluctantly than the morphine.

My method is based upon the well-known opium treatment of melancholia, which depends on doses of 18 grains or more of pure opium, which has been shown can be withdrawn without any difficulty if the withdrawal is done tentatively. The first question, therefore, to be answered, is whether it is possible to balance, by means of opium, those symptoms in the withdrawal of morphine which represent the greatest

difficulty in the treatment of morphine habitues, or whether it is possible in treating morphinists to supplant morphine by opium, which is, as above stated, more easily withdrawn. We have observed that morphine can be withdrawn without the aid of opium within several weeks by the gradual reduction method, but the results obtained are not very satisfactory as a whole, as evidenced by the fact that the patient suffers considerably and the temptation to deceive is, therefore, greatly increased. Sometimes, especially with cases of a very nervous temperament, the patient is so greatly weakened physically and mentally that the condition of the patient during the final withdrawal period is far from satisfactory. In the interest of the patient and for his own protection it is, therefore, generally necessary that he remain in an institution for a considerable period of time after the completion of the withdrawal treatment. I have been forced to observe, however, that conditions are found to be considerably different in those cases where morphine has been replaced by opium. The doses of opium induce a feeling of improved condition and well-being in the patient, a fact which is not generally known. The appetite improves, with a consequent increase in weight and strength, and there is no desire for morphine.

This improved condition continues under the gradual reduction of the opium dosage. Neither the patient nor I have any cause to be dissatisfied with this plan of treatment. If the opium is withdrawn too rapidly the phychical equilibrium of the patient is often impaired, and the typical withdrawal symptoms, such as aching of the limbs, pains in the abdomen and back accompanied by insomnia are characteristic.

When I first became acquainted with Pantopon I was able to convince myself that it possessed the therapeutic activity of opium and notably its comparatively easy withdrawability and that it possesses some most essential advantages over opium; namely, the advantages of hypodermic administration and the possibility of rapid increase of the dose to a very large dosage. These advantages can all be made good use of in the withdrawal of the morphine.

In five cases of very severe morphinism, two of them complicated by asthma, exceedingly successful results were obtained by the use of Pantopon. The possibilities of giving large doses of Pantopon makes it possible to supplant the morphine immediately with the Pantopon even in cases where the daily dose of morphine has been as high as 30 grains daily. The treatment to be most sussessful implies that the patient be kept quietly in bed and fairly well nourished with plenty of milk and such other bland and unirritating foods as are found to be most easily digested. I have also observed that the frequent use of hot baths for the patient tend to greatly mitigate the aching of the limbs,

nervousness and the many much dreaded withdrawal symptoms. In view of the fact that a large per cent of the suffering of the drug patient is purely psychical it is best for the patient to be entirely ignorant of the contents of the hypodermic. I have seldom been able to successfully treat the morphine patient who was fully cognizant of the nature of medicine given him, dosage, etc. Strong mental suggestion is, therefore, urgently indicated.

The appetite is not influenced unfavorably by Pantopon. The undesirable morphine-euphoria does not occur as with the slow withdrawal of morphine. I have also observed that Pantopon does not constipate, but rather counterbalances the unpleasant withdrawal diarrhoea. The condition of these morphinists whom I have treated with Pantopon convinces me that they were actually cured. I do not doubt, however, that further improvements of the method are possible. I have found, for instance, that by giving small doses of Scopolamin, along with the Pantopon, the use of hypnotics becomes unnecessary.

RESUME.

In the treatment of morphine habitues, morphine can be replaced without difficulty by Pantopon, hypodermically and internally, and can be withdrawn with far less discomfort to the patient, and greater satisfaction to the physician, than morphine.

THE EYE, EAR, NOSE, AND THROAT

OPENING REMARKS.

Dr. K. P. Battle, Jr., President of Section.

We meet today in accordance with a vote taken at the large gathering of Eye, Ear, Nose, and Throat men last year in Greensboro.

In preparing for the session of the State Society at Morehead in 1913 the innovation was made of establishing, among the many sections already existing, one on the Eye, Ear, Nose, and Throat. This was on the old plan of having a chairman appointed by the president of the society to have charge of the getting up of a section program, the papers to be read before the general meetings—as all papers had been up to that time. Dr. J. G. Murphy was made chairman and secured the preparation of five good papers. But his testimony is that the experiment was not a success. It was no doubt due partly to the charming distractions of time and place, but the lack of interest shown by the general membership was such that, according to the printed transactions, only one of the papers was read. Those of our men present consequently decided in a caucus that that sort of section should be abolished, and that papers should thereafter be presented through any section of the society that the individual might select. It was voted that a meeting of the specialists in our line present the next year should be held for the discussion of topics of common interest but not scientific. Dr. Murphy was chosen president. Accordingly, in Raleigh in 1914, the twelve men in attendance held a meeting, got better acquainted with one another and had interesting discussions on such subjects as fees and the proper charge, if any, to ministers of the Gospel and to nurses. It was again decided to have a similar meeting in 1915 and to leave it to each member to read a paper before the general sessions, if so disposed, and in any department that suited him.

On the Greensboro program there were six papers listed from the men of our specialty. As so often happens in the confusion of so large a gathering those that were read were not received with encouraging attention and half of them were crowded out altogether. It was from such considerations that the large assemblage of our men came to the conclusion that the time was ripe for the establishment of a new section, for the reading of scientific papers, but with the vital difference from the one of 1913 that it should meet independently and in its own time

and place. They elected a president and secretary and directed them to arrange for carrying out the plan. The society officers cordially endorsed it and we now have the result.

We have easily the necessary members for such a section. But it has not always, nor long, been so. As we look backward some extraordinary facts appear.

Our pioneer, of forty-three years ago, is still an interested observer of what we do, though retired.

The second to join the ranks, four years later, is in active practice and is with us here today.

At the end of the ten years following the first specialist's advent there were still only two in the entire State.

At the end of the first twenty years there were only five.

At the end of the first thirty years there were only thirteen.

But during the fourth decade, to this thirteen thirty-eight were added, and there are now seventy-nine.

This recalls a contrast. It is a matter of personal experience. On one occasion, during the early years when our special confreres were still not so numerous as "the leaves that strew the Vale of Vallambrosa," about the end of the second decade it may have been, when there were three others, in addition to my partner and me, within the narrow limits of our State boundary (it seems only the day before yesterday) the traveling representative of an optical company with whom we dealt brought us news of another specialist with designs on the Old North State. It is likely that our friend saw signs that we felt that we would be crowded, for he mockingly bade us be of good cheer. It was only a question of time. They were coming, like the birds in the spring they would come. Time passed and the other day the same man was in our office again, when our firm had been increased to three and there were more of our specialists in town than there had been before in the whole State. I was showing him the roll of 79 prospective members of our section. He did not recall his former prediction, and his solemn comment was: "The old State is about full, isn't she?"

The pioneer mentioned was Dr. Geo. W. Graham. He graduated from the University of N. C. in June, 1868, studied medicine at the University of Virginia, 1868-9, and graduated from the Medical Department of the University of the city of New York in 1870. He settled in Atlanta and practiced general medicine nearly two years. He then returned to the University of New York, prepared himself for eye and ear work, and in February, 1873, located in Raleigh. He practiced there until March 1, 1880, when he moved to Charlotte. In August, 1905, he retired.

Dr. Graham was joined in 1877 by number two, in the person of Dr. R. H. Lewis. From the University of N. C. he went like Dr. Graham to the University of Virginia. He graduated at the University of Maryland in 1871. After a year or two of general practice in Tarboro and its neighborhood he had his special training in Baltimore, mainly as a private pupil of Dr. Chisolm. The first two years of work in his specialty were in Savannah, in 1875-6. He then moved to Raleigh, where he has been ever since, completing this spring his thirty-ninth year of active practice, with the exception of eleven months out of work on account of illness three years ago.

The third recruit was the present speaker, who went into partnership with Dr. Lewis in 1886, and is still associated with him.

In 1890 Dr. H. O. Hyatt, who took his medical degree in 1868, began to drop general practice and devote himself to the eye, continuing his location at Kinston.

The next was Father W. H. Wakefield, who began special practice in 1891 at Greensboro, and moved the next year to Charlotte. He does not look it, but he is old enough to have had for five years now, the assistance of his son.

Dr. W. C. Galloway, more patriarchal, with his beard of Abraham, in appearance if not in performance, is the next on the list. His medical diploma is dated 1874, but not till 1894, in Wilmington, did he limit himself to special work.

Number seven was Dr. G. S. Tennent who, graduating in 1894, confined himself to the eye in the year 1897 in Asheville.

The year 1899 saw Dr. H. H. Briggs begin his work at Asheville.

The first year to see an addition of more than one to the ranks was 1900. Dr. C. W. Banner began at Charlotte, but settled himself for good at Greensboro soon after. Dr. E. R. Russell was also in Charlotte first, moving ten years later to Asheville.

In 1901 Dr. J. H. Drake, Jr., went to the same city and was followed, in 1902, by Dr. C. F. Norton.

In 1902 Dr. A. H. Whisnant opened his office in Charlotte, and in 1903, Dr. W. W. Sawyer began in Elizabeth City.

In 1904 Dr. R. V. Brawley began in Salisbury and Dr. Louise A. Merrimon in Asheville, our first woman. In 1915 she gave up practice, married, and is now Mrs. Perry, of Winston-Salem.

In 1905 Dr. R. J. Teague gave up general for special practice in Roxboro and Durham. Dr. J. H. Honnett moved to Wilmington, where he now restricts himself to the eye.

There were, in 1906, R. D. Jewett, Winston-Salem; J. S. Lafferty, first at Concord, now Shelby; Joel Whitaker, at Raleigh till 1914, now Indianapolis.

The next year brought R. G. Buckner to Asheville, T. W. Davis to Winston-Salem, J. M. Lilly to Fayetteville, J. G. Murphy to Wilmington, and J. B. Wright to Lincolnton, the last moving to Raleigh in 1914.

In 1908 B. W. Fassett began in Durham, S. E. Koonce in Wilmington, and J. P. Matheson in Charlotte.

In 1909 H. W. Carter came to Washington and Dr. Lillian C. Lowder, the second woman, to Asheville. The latter is now in Indianapolis.

The next year there was the largest addition yet made, eight: H. M. Bonner, New Bern, J. B. Greene, Asheville, J. A. McKethan, Fayetteville, C. N. Peeler, Charlotte, R. W. Petrie, Charlotte, T. C. Quickel, Gastonia, M. M. Saliba, Wilson, and O. P. Schaub, Winston-Salem.

The year 1911 brought five: R. S. Cauthen, Charlotte; M. C. Horton, Raleigh; S. D. McPherson, Durham; J. H. Tucker, Charlotte, and H. A. Wakefield, Charlotte.

In 1912 there were three: B. B. Lloyd, Chapel Hill, Edith Stamford, Asheville (who afterwards left the State), and M. L. Smoot, Fayetteville.

In 1913 the record was broken with nine: J. W. Austin, High Point; Mason Brawley, Salisbury; F. A. Carpenter, Statesville; O. C. Daniels, Goldsboro; W. H. Hollyday, Asheville; John LeGuin, Wilmington; H. T. Moore, Wilmington; W. W. Perdue, Asheville (now in Mobile), and C. R. Reaves, Greensboro.

Four were added in 1914: M. R. Gibson, Raleigh; T. B. Henderson, Henderson; F. J. Pate, at first Winston-Salem, now Greensboro, and L. N. West, Raleigh.

For 1915 I have three: R. S. Beam, Lumberton; J. M. Crawford, Asheville, and J. G. Johnston, Charlotte; and for 1916 one, J. R. Perkins, of Winston-Salem.

In addition to the above I know of two others, but their year of entrance on special practice I have not learned: W. P. Reaves, of Greensboro and R. L. Savage, of Rocky Mount.

Of the sixty-six thus far mentioned two have retired, three have left the State and three have died: Dr. C. F. Norton, Dr. J. H. Drake, Jr., and Dr. R. S. Cauthen.

This leaves fifty-eight who are understood to devote themselves now exclusively to our special work and there are doubtless more.*

There also at present on our provisional roll of membership in this section on the Eye, Ear, Nose, and Throat twenty-one men who pay

*Since this paper was read it has been learned that between 1890 and 1900 Drs. A. Crawford, Oliveros, McGilvra and Straw practiced the specialty in Asheville. Dr. A. Crawford was killed in a railroad accident in 1904. The others moved away after short terms of practice.

special attention to these subjects, but who do not confine themselves entirely to them. They are as follows: W. S. Anderson, Wilson; F. J. Garrett, Rockingham; E. S. Warwick, Morganton; H. Brantley, Spring Hope; W. C. Martin, Mocksville; L. E. Norfleet, Tarboro; B. K. Hays, Oxford; H. C. Menzies, Hickory; J. M. Parrott, Kinston; C. J. Sawyer, Windsor; I. M. Hardy, Kinston; J. H. Shuford, Hickory; M. A. Royall, Elkin; J. C. Dye, Statesville; O. O. Kofer, Edward; S. P. Bass, Tarboro; J. W. McConnell, Davidson; L. N. Patrick, Gastonia; R. L. Pittman, Fayetteville; C. H. Hemphill, Drexel; H. L. Sloan, Lincolnton.

If I am not misinformed, all of these are still engaged, at least to some extent, in other professional work. Yet we wish it distinctly understood that all of them, and any others whose names we have not been able to get, are cordially welcomed as eligible members of the section, on an absolutely equal footing in every respect with those who are strictly specialists and nothing else.

In conclusion I would say that it is shown that there are at least seventy-nine men who are now at work in the State, and who should be members of the section. They are men of ability and zeal. The future is bright and with the interest shown by the present attendance there is no need of an inspired prophet to foresee success in the course in which we have set out.

A CLINICAL STUDY OF SOME UNUSUAL CATARACT CASES.

John Hill Tucker, M.D., Charlotte, N. C.

I shall take for granted that you will believe that my successes in eye cases are normal for one of my position and experience, therefore, I shall not tire you with a single report of what I deem a successful case as far as results go. However, I believe that the very greatest amount of good the average worker in any special line can be to his fellow workers, is to report and discuss the unusual and what might popularly be termed his failures, for there is not a truer saying than "The wise man profits by the experience of others." With these remarks as an apology for not presenting other than my own personal experiences in this short paper, I beg now to report the two cases I specially have in mind.

The first case I wish to report is Miss M. T., whom I first saw April 30, 1913. At that time there was a small central spot in each lens,

larger in the left eye, the vision in right eye was twenty-sixtieths and twenty-eightieths in left eye, which could not be improved with lenses. She could read large type with right eye, but any type was uncertain with left eye. She was of a very nervous nature, exceedingly anxious to have something done, as she was entirely dependent upon her own efforts for a livelihood. She had tried and could not hold several positions, the last position was matron at a large South Carolina Boarding School.

The cataract, from her positive assurance, had entirely developed within the past 5 years. She had, as a girl and younger woman, used her eyes most constantly, being passionately fond of books and fine needle work, never dreaming of having eye trouble. I could well judge from her intense and high-strung nature, with such energy as only those natures have, that she had used her eyes under the most trying circumstances and when about 29 years of age first noticed a failing vision, which had gradually developed until I saw her in 1913, 34 years of age.

The spot was a posterior cortical cataract, although I have never been able to fully persuade myself in these cases whether the posterior capsule of the lens is not also involved. After many months of indecision on her part as to whether she would submit to an operation, I operated in October, 1914, my procedure was the usual needling operation, which I will briefly report:

First. With a dilated pupil the point of incision should be at least 2 or 3 mm. from the limbus, and in introducing my knife, which has a tapering shaft without a shoulder, always keeping the pressure against the back of the knife both on entrance and exit, for in this way your incision will not be too large for the shaft to plug the wound and prevent, as far as possible, the loss of aqueous at the time of operation, also preventing a prolapse of the iris. The reaction from the needling was as I should have desired, but on the third day when I had decided to try and remove the lens, she complained of intense temporal pain, and I found her increased intra-ocular tension to be 45 mm.—in other words, she had developed an acute operative glaucoma. Warm application and eserine pilocarpine and dionin were used while the tension remained up and the eye became inflamed. In my judgment I should do an iridectomy, but with this my troubles really began, for with increased tension and a very decreased anterior chamber, it was hard to enter my keratome, for with the loss of aqueous and the swollen lens it made the iridectomy difficult, however, it was accomplished with reduced tension and relieved pain.

After the eye had subsided, about 6 weeks later, I attempted to remove

my needled lens by making the regular section; however, the lens was still soft and all could not be removed, so I irrigated with normal salt solution my anterior chamber. The eye subsided and in the course of six months there had developed a decided membrane, the remains of dense capsule with adhesions to the iris, though with a plus 8 spherical glass, she could see enough to move around were that the only eye left her.

With these experiences, I decided not further to operate on this eye, but my friend, Dr. Benjamin W. Key, of New York, visiting in Charlotte in November, 1915, saw the case and felt anxious to operate on it, advising a DeWecker operation, *i. e.,* at point of choice, he entered keratome, making a wide incision, and then with a pair of DeWecker scissors, one blade blunt and the other pointed, he entered his incision and grasped the tough remains of capsule, made a wide incision through it and the iris below. At this time was the first loss of vitreous from the eye and the eye made a speedy and uneventful recovery from this last procedure, when to my great regret, she reported early in January, this year, with an acute glaucoma, severe pain, redness and increased tension about 44 mm. Hot applications with the myotic treatment before used relieved the pain and the eye subsided.

Her vision in that eye, with the proper correcting lens, is now about ten two-hundredths, and she is, as far as her ability to make a living, no better off, and with my experience with this eye, although she has given her consent, I hesitate to advise or do anything else for the other eye. Time can only decide what I will do in this matter, and I have reported this case with the hope that I may be given valuable suggestions from the experience of others.

My other case, which I will try more briefly to report, was Mrs. R. F. S., who first consulted me in October, 1914, age 55.

In this case there were large central spots which almost entirely filled the interpupillary space when in a moderately lighted room, in certain subdued lights she could see with left eye large type, with right eye she could not see the largest type and in bright sunlight she was practically blind.

Her history was within the past 10 years her eye symptoms had developed. The patient, like my first case, was of a nervous temperament. Having a son in Philadelphia, I suggested that she consult some one in Philadelphia, but meeting her on one occasion in Washington, I suggested that we go around and get Dr. Wilner to look at the eye, so both Dr. Burke and Dr. Wilner advised a needling operation, with the removal of the lens as soon afterwards as possible. Had I dreamed of the intense nervous nature of my patient, I think then and there I would

have put it up to Drs. Wilner and Burke, for being away from her family and friends she would have been better off. However, to report what happened:

Under the most rigid care I needled the lens on July 28, 1915, of the right eye, apparently the only thing of note that happened at the time was the escape of much clear aqueous solution from the point of entrance. The eye was dressed, and, I may here add, Dr. Weeks' method was followed, and the patient was operated on in her room to avoid moving her from operating table to bed, as she was a fleshy, heavy patient.

On removing the dressing the following morning I found the cornea hazy, a marked conjunctivitis with slight oedema of lids, decidedly the greatest reaction I had ever experienced from a needling operation. I at once thought of an infection, so treated it accordingly. I waited until the following morning, and, on dressing the eye, found the conjunctiva swollen, cornea hazy, anterior chamber very deep, with a prolapsed iris, so decided that I should try and remove my lens.

I had a great deal of trouble in making my section, due to the escape of fluid from the very beginning of the puncture. The fluid was of about the consistency of diluted glycerine, of a yellowish tinge. The patient squeezed horribly on attempting to do an iridectomy and almost emptied the eye. The iris was friable and would pull off in attempting to draw it sufficiently out to use scissors. Pressure in an attempt to deliver the lens would get vitreous and not lens. In other words, for the first time in my life I was confronted with a really fluid vitreous. As the last resort I attempted to remove the lens with a hook, but could not, so finished there and then, dressing the eye in the usual way. On leaving the operating room it was quite an ordeal to report to anxious friends and relatives the hopelessness of my attempt.

The eye, with excellent nursing, gradually quieted down and looked as if we would not have to enucleate, but the patient, as is her custom when the slightest up-set in mind or body, began to vomit and was nauseated with severe retching for 3 days, only being quieted while under a hypodermic of morphine. On about the 20th day she had perfect light projection and we really felt encouraged as the remains of the lens had arisen into the anterior chamber, but a few days later, I was called in a hurry when she discovered that a black cloud, as she expressed it, had seemingly come over the eye. We drifted along for a week or two more without the slightest ability of the eye to discern light. The patient's nervous system in the meantime had become so up-set that I advised taking her out of our city and letting someone else enucleate the eye, which Dr. Burke, of Washington, did, and in frozen section the eye was filled with blood.

This patient, as my first case, has another eye with another spot. She has been since November under the constant care of a physician and nurse, treating her for a complete nervous collapse. Now her nervous symptoms are getting better and her daily question is: "What can they do with my other eye?"

The vitreous with a dilated pupil seems clear as it did in the eye that I operated on—in other words, the eye does not present the symptoms of degeneration that I found at the time of operation, but I cannot conceive of a greater responsibility in the broad fields of human endeavor than that which is put up to an ophthalmologist, to operate on the last eye when he has enucleated the other eye, under the circumstances that I have related, and I must admit that I have not yet reached that stage of confidence in my own ability that I would be willing to undertake the responsibility of removing the other lens.

I thank you for your attention and although I have not suggested a single new fact, I have tried honestly to report two of my greatest failures, and trust they may here be discussed, for were I given the chance again I should in the light of reported results proceed along different lines—but console myself with the belief they both were unusual eyes.

DISCUSSION.

Dr. H. H. Briggs: If more of us would report our failures rather than our successes, we would learn how to avoid the pitfalls, and especially in cataract extraction. It seems to me that Dr. Tucker has handled these two cases in the best way possible, and I can well see how he would hesitate in attempting to operate on the only eye left. One of his cases is quite similar to one of mine, a negro man, sixty years of age, whose vision was limited to fingers at one foot in the right and to ten feet in the left eye. He declined to have the left eye operated on. The tension of each eye was a little high, between thirty and forty. The projection was fair in each eye, the peripheral field being defective. The dilated pupil revealed that the right lens was small. The intracapsular operation, which I have used almost exclusively for the past six years, was used in this case. On making the incision, there was a rush of liquid vitreous and immediately the lens dropped out of sight into the vitreous chamber. The patient was very nervous, the eyeballs quite protruding, and as I did not know where the lens had gone I made no effort to find it. The wound did not heal well, and in about two weeks this eye had to be removed. In attempting the same operation on the other eye, which was also diseased, the lens and considerable vitreous literally popped out on the eyebrow. The iris immediately re-

sumed its proper shape, and as no further toilette seemed necessary the eye was bandaged, with the final result of 20-40 vision. The entire time of this operation was probably not more than five seconds.

The intracapsular operation is gaining more and more in favor, and one or more modifications of Smith's original method bids fair to became universally adopted. Seven years ago I visited the late Dr. Green of Dayton, Ohio, who at that time had charge of the eye work among more than six thousand patients at the Old Soldiers' Home. He had visited Major Smith in India and learned his method of operating. After using this method for more than six years I have become convinced that for me, it is the operation of choice. There are, of course, some cases where the old extraction method is indicated, especially the kind of cataract that Dr. Tucker first reported.

Dr. E. Reid Russell, Asheville: I have had the same results that Dr. Tucker speaks of. I have seen pretty near all of the men in our country here operate, and I have come to the conclusion that the greatest advancement that has been made has been made by William A. Fisher, of Chicago, Eye, Ear, Nose, and Throat Specialist. He was with Major Smith in India, and does the intra-capsular operation, doing away with this secondary operation. I think we have greater trouble with the secondary operation than the primary. Lots of the men say they don't like this operation for the reason that there is a loss of vitreous. I don't believe this to be true. He does not put in a self retaining speculum, there can't be any pressure on the eyeball. He has invented a little needle. In a case where the cataract does not present itself, he puts that needle in the capsule and lifts it out. I saw him do ten cases one morning without a single loss of vitreous. He bandages the eyes and does not see them for nine days.

Dr. J. G. Murphy, Wilmington: I am pleased to hear two such men as Dr. Russell and Dr. Briggs advocate this intra-capsular operation. It is the operation par excellence, of course, if we can do it. I have heard this question discussed by some of the leading doctors in the North each year for the last five years. If I do not hear it discussed I always ask what is being done in regard to the Smith operation. I have done a Smith operation myself a time or two, and have some good results to record. I think Dr. Briggs will get good results from the case he has reported. I had a patient some time ago, a negro woman, in which I finished my operation in eight to ten seconds, a Smith operation, though not intended. In removing the fixation forceps after making my incision the spring made a little click which frightened her and she suddenly

squeezed down on the eye with all the power that the orbicularis has in this race. The lens shot out of her eye and fell on her forehead and she lost considerable vitreous. I dressed the eye and waited eight days and got a good result. The results, as reported by Dr. Russell, of success in fifty cases out of sixty without loss of vitreous in a single case is splendid.

Dr. Tucker spoke of a complication he had in one of his cases which was something like a case I had recently. I was operating on a second eye for senile cataract and the patient became nauseated and began vomiting during the night and some of the stomach contents got in the eye and caused an infection which took a long time to heal. My result was a failure.

Dr. J. M. Lilly, Fayetteville: I have never seen Dr. Fisher operate, but I am very much interested in his instruments. In the last month I was in New York and saw Dr. Torek operate at the Hermann Knapp Memorial Hospital. He said he was going to read a paper on his method of intra-capsular extraction in Washington in May. In his operation he uses the speculum, which he says is the best thing to use. He operates in bed, sitting at his patient's side, introducing the knife, as a right-hand operator does, operating on the left eye. Then he does it as we always do it, and with a forceps of his own device he grasps the lower edge of the capsule. He makes general pressure on the eye until he feels the zonula rupture then by quick motion he tilts the lens upwards. He says in most all cases he has attempted (60 in number) that he has succeeded in removing the lens in the capsule. In ten cases that he did not remove the lens in the capsule, he succeeded in extracting it without the capsule and in no case has he lost any vitreous.

Dr. Tucker: In reference to what can be done for an eye. It was in a Bible Class a few weeks ago that there came up the discussion as to what constituted a miracle. My own feeling demonstrated was that I did not believe there were any miracles recorded in the Scriptures more remarkable than some things I have seen happen to the human eye and then see that eye restored to a completely useful organ by nature. Seriously, it is remarkable what the eye will stand for in the way of poor and inefficient surgery. There is not one man in a hundred doing eye work today, in my humble opinion, who sufficiently studies in detail the eyes he operates on.

There was a very excellent report only a few days ago in the *American Medical Journal* by someone whom I do not remember in which great emphasis was laid upon the fact that the slightest incarceration of the iris following an operation on the iris should be watched regularly until

that incarceration is free. I am inclined to accept that statement as true. Many a beautiful result in cataract has been marred, if not ruined, by failure to properly free the pillars after an iridectomy.

These cases that I have reported are not, of course, typical, and I have reported them because they were failures, and I think, in a measure, if I made mistakes in these cases, I now appreciate all the more a careful detail study of each case before operation. I do not believe we can go too far or be too careful in the small things connected with the eye.

The general surgeon may smile all he wants to at "the old maids" doing eye work, but good results in eye surgery are only obtained by the most deliberate care of the small details of the work.

Dr. J. G. Murphy: I am so favorably impressed with what has been said about rubber tissue dressings in the nose that I think I shall try it. About a year ago, at the suggestion of the Superintendent of the hospital where I do my surgical work, I began using rubber tissue drains in mastoid wounds, and I have found them far superior to gauze. I am dressing a case now upon which I had to do double mastoid operations and where the soft tissues were considerably infiltrated, and I am sure my results are far superior to what they would have been with gauze, as well as much less painful to the patient when doing the dressings.

THE REMOTE SYSTEMIC EFFECTS OF NASAL AND PHARYNGEAL OPERATIONS.

E. Reid Russell, M.D., F.A.C.S., Asheville, N. C.

One of the most useful surgical procedures is adenectomy. After the surgical removal the results have, without exception, been good. It is a pleasure to see the narrow chest, hacking cough, mental dullness, running nose, frequent colds, ear-ache, deafness, nose-bleed, etc., disappear. For an acute otitis media the adenectomy may be done with the best results, even during the attack. The symptoms of adenoids in children vary, and in certain cases their presence creates no apparent disturbance.

Tonsillectomy may be considered next. One does not do tonsillotomy any more. The results of this operation are brilliant, with a few exceptions. This is a capital operation, more dangerous, as some one has said, than "amputation of the leg at the hip-joint." After the enucleation of the tonsils one will notice clearness of the tone and lessening of

vocal fatigue. Also the singing voice is increased in range, and there is less tendency to hoarseness when such exists, either in singers or speakers. The general health is greatly improved in many ways. Impairment of the singing voice has been observed from change in size of pharynx and cicatricial contractions. I should not remove a tonsil at any age, unless I was convinced that there were disorders of health or hindrance to development, which are due to the tonsils.

That tonsil that has never been inflamed is no proof that it is not causing or may not cause trouble. One may see a relationship which another may overlook, between the tonsil and other parts, as the nose, ear, pharynx, larynx, the pulmonary and gastro-intestinal tracts, and causing deafness, tinnitus, hoarseness, (recurrent) catarrh, bronchitis, cough, and indigestion, and these by causing more or less impairment of health. The usual cause of singers' node is tonsillitis, and a clean enucleation of the tonsil usually cures this.

Recurrent enlargement of the deep glands of the neck, laryngitis, with attacks of hoarseness, follicular pharyngitis and recurrent acute articular rheumatism following acute tonsillitis, are cured or benefited by operation.

By the removal of the tonsils we often see recovery or marked relief from troublesome joint inflammation involving the knee, ankles, etc. A chronic antrum abscess may also be the cause. No matter where the foci are, removal is the thing. The teeth, nose and throat all should come in for close observation.

The glands of the neck as we know, are simply a continuation of the tissue of the tonsils and adenoids. The infection may remain there for a long time, and at some future time crop out and give trouble.

Dr. J. G. Wilson reports the finding in the tonsil of the bacillus aerogenes capsulatus (Welch). The tonsils were removed because of frequent attacks of gastro-intestinal disturbances. Also chronic articular rheumatism. This is the second time it has been found in the tonsil, but it is very often found in the gastro-intestinal canal, and the symptoms are marked.

We see various symptoms of tuberculosis vanish on the removal of the tonsil. We also are reminded of the relationship between endocarditis, nephritis, etc.

I am quite sure that the removal of the tonsil is wrong in any case of atrophic rhinitis and should never be done. Neither should the operation be done on certain cases of advanced tuberculosis. As for the resection of the nasal septum, the results are a reconstructed functional septum. We find that the reflex and other symptoms associated with the indications for operation will gradually disappear completely in a

large percentage of cases. The after effects on the throat, ears, lungs, and the whole system are very marked. The catarrhal symptoms pass, the patient's mind is bright, the asthmatic symptoms are often helped, and a few cured. The tubercular patient is wonderfully improved by this operation. The most frequent pathological condition involving the ethmoid labyrinth is acute catarrhal ethmoiditis. This also extends to the accessory nasal sinuses very often. The submucous operation in a very large per cent of the cases removes these symptoms. The free nasal respiration is a benefit to all.

Many cases of deflected septum were treated by local application, the temporary improvement being due to temporary reduction in the turbinate engorgement. The practical surgery of the nose and accessory sinuses by rhinologists has put a stop to all this. All these operations should be done in a hospital. The operation of the middle turbinate includes an attack on the ethmoid, and the septum operation and all intranasal approach to accessory sinuses may be followed by dangerous consequences.

The submucous is indicated in the recurrent acute inflammation of nose, and acute inflammation of accessory sinuses. In atrophic rhinitis the submucous is indicated only in marked deviations. The most brilliant results are often seen in inflammaton of the accessory sinuses and nasal polypi. In hay fever subjects the symptoms are at least very greatly alleviated. In all sinus diseases, as the frontal, sphenoid, etc., must be treated radically at times, but often we can restore the normal function of the inflamed sinuses without doing the radical operation, whose object is to destroy the affected structures. Meningitis is seldom a result of sinus suppuration, but of an operation to relieve the chronic condition. If there is free drainage and no sign of ill-effects on the general health, but only an occasional headache, and the patient can be kept under observation, the risk of a radical operation more than counterbalances the advantages. There are a number of ways in which disease in the nasal cavities affects the intraocular structures, though the venous channels, arterial supply, sensory and motor nerve supply, the sympathetic nerve and the general absorption of infectious material. When we consider the thinness of the wall between the attachment of the rectus muscles and sphenoidal cavity and ethmoid cells one can see how the disease of these cavities may impair the function of the muscles. The result of treatment of the accessory sinus disease in the presence of muscular imbalance further goes to show that there is an intimate relation between the two conditions. In all sinus diseases accompanied by serious eye symptoms the endonasal method, or even one of the more radical methods may be performed. We may not and do not cure all

the sinus cases either by radical or milder treatment. Secure good drainage, should a radical operation be done, then make it radical, so that the field can be inspected afterwards.

Most of the cases of chronic catarrhal otitis media that appear in adult life are the result of some diseased condition of the nasopharynx existing during childhood. Any condition that interferes with the normal physiological action of the Eustachian tubes will predispose to middle ear disease and a normal nasopharynx is an important factor in safeguarding the ears.

I would like to speak of a few things, and one is, use a little more conservatism.

I have found that with a quick purge and probably a little local treatment, it is not necessary to always open the sinuses.

Another thing I spoke of was atrophic rhinitis. In my observation it is not a good idea to remove the tonsilis and adenoids in this condition. I don't remove tonsils and adenoids unless it has to be done. That is about all I had to say.

SUBMUCOUS RESECTION OF THE NASAL SEPTUM.

H. W. Carter, M.D., Washington, N. C.

This operation is performed for the relief of nasal obstruction when caused by deflection of the septum. In many instances, deviation of the septum is of traumatic origin, and in these cases, as a rule, only the cartilaginous portion is involved, the bony part being protected by the nasal bones.

More frequently the deformity is due to maldevelopment, the perpendicular plate of the ethmoid bone and the vomer, as well as the cartilaginous ceptum, being deviated. When the vomer is affected, we have what is commonly termed the ridge, which obstructs the inferior meatus and sometimes impings upon the inferior turbinate, causing congestion and swelling of that body. Deflection of the perpendicular plate of the ethmoid is a more serious condition, the convex side of the deviation impinging upon the middle turbinate body and obstructing the ventilation and drainage of the superior meatus and the accessory sinuses of the nose. The pressure thus exerted causes congestion of the parts, the ostei of the sinuses become closed from swelling of the mucosa and pressure of the middle turbinate, the secretions are retained and decompose, and infection taking place, we have suppurative sinusitis.

The frontal sinus, the anterior ethmoid cells and the antrum of Highmore all drain into an area not more than one half inch in diameter, which is guarded by the middle turbinate bone and which is called the "viscous circle" of the nose.

By removing the obstruction in this area by submucuous resection of the deviated bony plate of the ethmoid, free drainage and ventilation is secured and sinus disease frequently cured without resorting to more radical measures.

The operation is not indicated, unless the deviation of the septum is great enough to obstruct nasal respiration or block the drainage from the sinuses or interfere with the functions of the turbinal bodies.

I would mention one exception to this rule, that in which, occasionally, such a large volume of air is breathed through the side of the nose on which the concavity exists, as to dry up the secretions and cause an atrophic condition of the mucous membrane. In these cases the operation equalizes the air space on the two sides of the septum and stops the atrophic process. Nearly every operator of experience develops his own technique, and many valuable instruments have been devised for use in this delicate and tedious operation.

Some surgeons place the patient in a reclining position, and Ballenger always begins the operation by making his incision on the left side, using powdered cocaine instead of a solution.

I prefer to have the patient seated on a chair with the head supported by a properly adjusted head rest.

The nose is sprayed with an alkaline antiseptic cleansing solution, and any hair in the anterior nares is trimmed away with scissors.

With small pledgets of cotton wound on aplicators, the entire surface of the septum on both sides is alternately painted at intervals of two or three minutes, with a ten per cent solution of cocaine and a one to one thousand solution of adrenalin chloride, being careful with each application to squeeze out of the cotton any excess of solution. In ten or fifteen minutes anæsthesia is complete and the operation may be performed without pain.

It is begun by making an incision on the side of the greatest convexity, a little posterior to the anterior end of the cartilaginous septum and extending from the floor to the ridge of the nose. A little experience will enable one to operate with almost equal skill on either side. The incision should extend through the mucous membrane and perichrondrium down to the cartilage.

Hemorrhage may be troublesome, but as a rule is easily controlled by sponging with cotton wound applicators, using a little adrenalin if necessary.

The separation of the membrane should be started with a small, sharp elevator. If the incision has included the perichrondrium, the elevation of the membrane will be comparatively easy and will disclose the white glistening surface of the cartilage.

After the elevation has been well started, the membrane may be more rapidly freed by using large, blunt elevators. The muco-perichrondrium and periosteum covering the entire deviation should be carefully separated.

In making the incision through the cartilage, it is necessary to exercise great care to avoid cutting through the mucous membrane on the other side.

Should such an accident occur, it is better to postpone the operation, because further manipulation will enlarge the opening, and after healing, the septum will be left with a permanent perforation.

Specially devised knives, with guards to limti the depth of the incision, have been used to avoid injuring the opposite membrane. McCoy's having an adjustable blade, being one of the most popular.

I prefer to use Freer's sub-mucous knife, and to depend upon the finger placed against the side of the septum, for protection of the muco-perichrondrium.

By cutting cautiously the rounded blade of the knife is felt as soon as it emerges through the cartilage, before doing any damage to the adjoining membrane.

The incision through the cartilage should correspond in length to the original incision through the muco-perichrondrium. In beginning the elevation of the membrane of the other side, it is better to use a small, dull Freer elevator, but if adhesions are present, better results may be obtained with Abraham's sharp elevator. The point of the instrument should be carefully directed against the septum and away from the membrane to avoid perforation. As soon as the elevation is well started, more rapid progress may be made, by substituting large, blunt elevators, with which the membrane over the entire deviated portion of the septum is separated. It is sometimes very difficult to separate the membrane over large spurs and ridges and in doing so a perforation may occur.

This delays healing but otherwise does little harm, unless there is a similar one opposite to it on the other side, making a hole through the septum.

The next step in the operation is the removal of the deviated cartilaginous and bony septum.

A long Myle's submucous speculum is introduced, one blade passing through the incision in the cartilage. By separating the two blades, the muco-perichrondrial pouch is stretched and the septum exposed to view.

Using a Ballenger swivel knife, the cartilage is rapidly removed in one piece.

With a few bites of a suitable bone cutting forceps, as the Ballenger-Foster or McCoys, the deviated portion of the bony plate of the ethmoid is removed. Great pains should be taken to remove any deviated bone opposite the middle turbinate, which may encroach upon this body and interfere with the ventilation and drainage of the superior meatus and accessory sinuses.

The cartilage should also be removed close to the roof of the nose, as it may afterward swing to one side and cause partial obstruction.

The removal of the deviated vomer or so called ridge of the septum is very difficult and is often imperfectly done, thus robbing the operation of a good result.

For this purpose a downward bone cutting forceps, as McCoy's or Hurd's, may be used, and if it is not practicable to remove the entire ridge with forceps, it may be completed with Hajek's gouge and a mallet, being particular to leave the septum smooth and straight near the floor of the nose.

The muco-perichrondrial pouch is now carefully inspected, the long submucous speculum removed, and a short one inserted for further examination. With a cotton wound applicator, the membranes are carefully placed in juxtaposition, when, if the operation has been well performed, the septum will fall perpendicularly from the roof to the floor of the nose. A dressing is applied for the twofold purpose of holding the membranes in apposition until healing takes place and to prevent the formation of a blood clot in the muco-perichrondrial pouch.

Some operators use the Simpson-Bernay nasal splints, but I prefer the following dressing: Introducing the long Myles speculum on the side of the incision, with small nasal dressing forceps a long strip of gauze, one inch wide, smeared with sterile vaseline, is lightly packed into the nasal chamber in such a manner as to hold the membranes together over their entire surfaces.

The speculum is then withdrawn and the other side similarly but more lightly packed, after which small pledgets of absorbent cotton are placed in each anterior nares. There is considerable oozing of blood and serum the first twenty-four hours after the operation, necessitating frequent changes of the cotton in the anterior nares.

There is usually some swelling of the nose and the patient may complain of pain, which is quickly relieved by a small dose of codeine.

The gauze is removed in forty-eight hours, the nose sprayed with an alkaline cleansing solution and fresh cotton placed in the anterior nares.

Healing usually takes place in from three to ten days. A hæmatoma

will sometimes form in spite of all precautions, but will absorb if it does not become infected.

When detected it is best to make an incision in the membrane, and if infection takes place, to wash out the sac.

According to most authorities, the cartilage removed is replaced by dense fibrous tissue, but Freer claims that it reforms, especially in the young.

When indicated and properly performed, submucous resection of the nasal septum yields brilliant results.

DISCUSSION.

Dr. J. B. Wright, Raleigh: I desire to thank Dr. Carter for this very valuable paper. To enter fully upon the causes, symptoms, and sequelæ of septal deformities it would enlarge the field of discussion so as to make it impracticable for one paper. Therefore I shall confine my discussion to only a few of the most vital points.

Why do we advise this operation? It is not wholly because of the nasal obstruction, for this can be from other causes—enlarged inferior turbinates for instance. The removal of the nasal obstruction when caused by enlarged inferior turbinates does not give the highly satisfactory results as does straightening the septum. When the deviation of the septum is the cause *per se* of the nasal obstruction, we could easily cut off a bit of the turbinates where contact exists, and in that way open up the obstruction, but the results are far from as satisfactory as is the case when the septum is straightened—hence the question, "Why do we do this operation?" The answer is: First, because we get the results, and that is what we are after. In straightening the septum to relieve the symptoms caused by nasal obstruction, we do not destroy any tissue that is of use in warming the breath, we do not interfere with any of the nerves, blood vessels or mucous membranes, and yet we relieve the obstruction. When the symptom complained of is deafness, then there is no other way to benefit it save straightening the deviation. The deafness is caused by the deflection of the septum interfering with the normal course of the air as it is inhaled through the nasal cavities. The deafness invariably occurring on the side in which the concavity of the deviation exists. The deviation causes the current of air to be turned outward over the mouth of the Eustachian tube, and this constant draught as it were on the mouth of the tube, causes what sometimes is termed dry tubal catarrh, and if it has not existed too long, the correction of the deviation relieves the deafness by removing the draught. I think I am safe in making the statement that my results

from this operation are more universally satisfactory than any operation I do.

I recall a case I operated on a few years ago. The patient was a frequent sufferer from colds, hardly ever free from one during the winter season, also suffered with nasal catarrh and indigestion. For his indigestion he had tried the local profession with no permanent relief. He then was treated by a stomach specialist from Charlotte. He had been for a number of years in this condition. After doing a complete resection of the septum he was relieved of his nasal catarrh, was cured of his tendency to take cold and also cured of his indigestion.

Another case I operated on since coming to Raleigh: The patient complained of inability to concentrate his thoughts and failed to grasp the real meaning of sentences as they were uttered. As an illustration, if any one told a joke in his presence, the others present would see the point and laugh and enjoy it, and something like a quarter or half an hour afterwards the real point of the joke would dawn on him. After the operation all these annoying symptoms were relieved, besides the pleasure of being able to breathe freely.

When the deviation is situated so as to cause pressure in the locality of the "vicious circle" of the nose, it then causes quite a train of symptoms, headaches being among the most frequent. It has been my good fortune to cure quite a few patients of their headaches, some of them had been fitted with glasses to relieve the headaches. It should be our universal custom to take a peep into the noses of all our headache patients, even if they do need glasses.

My method of doing this operation might be of interest to some present. I do not use any sharp instruments at all. I always make my incision on the left side and do it with a dull elevator, made according to my instructions. It is slightly concave on one side, and convex on the other with a rounded point. With the forefinger of left hand in patient's right nares I make the incision on the left side with a stroking motion. I gradually work my way through the mucous membrane. Then after the mucous membrane is thoroughly elevated on the left side, I proceed for the cartilaginous incision the same as the mucous membrane. I can easily feel the point of the instrument as it comes through the cartilage with the finger tip that is in the right nares. I have a very good reason for always making my incision on the left side, and that is because I can use my right hand more skillfully than my left. After the mucous membrane is thoroughly loosened I then bite away all cartilage and bone with a pair of Hurd's biting forceps, using the medium size. Some of the difficulties encountered are loosening the mucous membrane over the spurs and angular deflections. I find the slightly concavo-con-

vex elevator with a long handle, a modification of the Abraham elevator, the best instrument for loosening the mucous membrane around these projections. This should be thoroughly and carefully done before any attempt to remove the bone or cartilage is begun. Of recent years I have entirely discarded the swivel knife. The dressing I have been using of recent years is ½-inch strips of sterile Bismuth gauze put up in glass tubes containing one yard each. In packing the nose I am careful that the floor and roof of nose are packed on both sides, but not too tightly. After both sides of nose have been packed I push the packing on left side outward and with a pair of nasal dressing forceps I make traction on the cut end of the mucous membrane, pulling it up in position and then press the packing against it, using no sutures to hold it in position. The packing is left in nose for 48 hours, then removed and nose cleansed with Dobell's solution several times a day. Some bismuth paste plastered over the incision and all tears that should occur in the mucous membrane daily for about four days. Patient is then given Dobell's solution and sterile vaseline and ordered to use the former every four hours and the latter on retiring at night.

One point not mentioned in Dr. Carter's paper is the hindrance septal deflections are to the volume and tone of the voice in singers. Straightening septal deflections increases wonderfully the volume and tone of the singing voice, especially in head tones. We often fail to get the results we should from this operation because we do not keep our patients under observation long enough after operation. I wish to see my cases for at least six weeks after operation.

Dr. J. M. Crawford: I have enjoyed the reading of this paper—the subject being well represented. May I ask why it is that where we have a spur on the septum, if deafness exists, it is in the opposite ear?

Dr. H. H. Briggs: I am sorry I was not present to hear all the paper. This is a most interesting subject and one which has been given great attention in the last eight or ten years. The first two operations I attempted were in 1903. I had poor results, in that there resulted a rather large perforation in each case, but were successful in restoring normal ventilation and breathing. I had been to New Orleans and heard Dr. Freer's paper on submucous resection, and immediately placed an order for his instruments. They were slow in coming and in my anxiety to try the operation I attempted the two cases without the proper instruments. These patients are still walking around as evidence of my bad surgery. Since that time I have been doing more and more submucous work and consider the operation the greatest stride that has been made in nasal surgery in the last twenty years.

When we think of the old way we used to operate on spurs, taking off only enough to partially relieve the stenosed condition, we are very thankful that the resection operation has been devised. I am rather surprised at the statement of the essayist, that he would stop the operation if, in making the incision through the cartilage, he perforated the mucous membrane of the opposite side. I know that many operators do advocate this proceeding, but I do not see why there should be any occasion for stopping the operation. We try, of course, not to perforate the mucous membrane of the opposite side, but if this accident occurs, it may be remedied by placing a suture around the perforation by means of a Yankauer needle; however, a small perforation, unless it happens to be opposite a perforation in the opposite mucous membrane, makes no material difference. In fact, it is my custom, where no perforation has occurred on either side, to make a few small perforations in the mucous membrane near the floor of the nostril for the purpose of drainage. This brings me to the point that I practically always stitch my incision, using one or two sutures, carried by a long, straight needle with the eye near the point, unthreading the needle before withdrawing it.

In dressing the wound I use a strip of bismuth gauze, one inch wide by a yard long. This is passed through the blades of a long nasal speculum which extends as far into the nostril as has the resection. Each nostril is thus packed posteriorly and superiorly as far as the resection extends and as far forward as the anterior nares, in such way as to hold the two mucous membranes firmly together until union by first intention takes place. The long speculum answers the double purpose of facilitating the packing and avoiding misplacing the flap or tearing loose the sutures.

This dressing is left preferably forty-eight hours, when it is removed and an ointment consisting of sterilized boric acid vaseline, put up in a two ounce collapsible tube, is used by the patient night and morning for the purpose of facilitating the removal of crusts which tend to form. If you have carefully avoided perforation and sutured your flap, the wound should heal by first intention, and if you have placed your dressing properly, thereby avoiding hemorrhage between the flaps, the wound should be well in three or four days.

Dr. E. R. Russell: One question comes to my mind. For instance, in getting out the septum, I usually take mine out with a small knife, and draw a line at the bottom of the crest on either side, after I have separated the right and left. In that way you can take the forceps and very generally turn it, and it will come out. Formerly I used to use the chisel. If that tough membrane is cut on both sides it is very easy to turn it a little, and it comes right out. Another thing that has been sug-

gested. I don't know that it is very much use to me. I noticed the other day that the doctor at Rochester suggested that mopping on the cocaine was not a good idea, that a certain amount of inflammation was set up, and by mopping the cocaine makes it worse. He takes a solution of 10 per cent on a piece of cotton, and lets it stay about ten minutes. He says there is less swelling and reaction by doing that.

Another thing is about perforations. I don't think perforations hurt much, although it looks as if it shows up our fault of technique. If you take your time you are not likely to have any perforations.

For attacking the bony ridge, I have a small saw, three millimetres long, like a hatchet, that is very useful, and with Abraham's elevator you can break it off that way.

I find that one of the best things I have found in dressings is Cargile membrane. It is put up about enough for one operation. I split that in half, and put it in my speculum dilator, and place it back in the nose on either side. I do all my operating work in the afternoon, and I take this dressing out the next morning by nine, and it comes out with no pain to the patient at all. Of course, there is always during the night a little bit of oozing of blood. They used to send for me, that the patient was bleeding. I packed it tighter and called to see him because he was suffering, but I would rather take the bleeding than bruising.

Dr. T. D. Davis: On the line Dr. Russell has spoken, I think the dressing is one of the most important features. I never found gauze satisfactory in any shape or form. I like a small rubber finger cap, packed with absorbent cotton. We can get anywhere from two to three of these; you have a smooth surface and can take them out very easily, possibly the same day. I think this avoids a great deal of trouble that comes from the irritating effect of gauze.

LATE SARCOMA OF SUPERIOR MAXILLARY BONE. THREE CASES ATTENDED BY EXCISION OF BOTH EXTERNAL CAROTIDS.

S. E. Koonce, M.D., Wilmington, N. C.

In considering this serious disease and its horrible manifestations, I have nothing new or startling to report, but merely wish to assert that its victims can usually be rendered not comfortable but decidedly less uncomfortable and their lives prolonged weeks or even months.

Accordingly, I shall give a brief history of my three cases with conclusions to be drawn from them, without, however, any attempt to give technique of operations as that can be found in any text book of anatomy and an operative surgery.

Case 1. Isaac N.—An old man about 76 years of age, history negative, who had led a very dissipated life, came to my office seeking relief. His face was swollen, alae nasae widely distended, growth visible, and completely filling right nasal passage. He complained of intense pain, as if a vise were distending his cheeks, and showed complete absence of nasal breathing, with inability to sleep. He had visited several physicians, one or two of whom had attempted to remove growth, but stopped work on account of profuse hemorrhage upon least disturbance. Patient pleading for operation. In spite of unfavorable consultation, we decided to ligate external carotid artery and curette growth. Operation was performed without difficulty. The external carotid artery having been readily ligated, with index finger passing into nose as curette, we scraped out an immense mass of sarcomatous growth which filled entire nasal passage and completely destroyed turbinates, internal antral wall and bony septum and parts of ethmoid and superior maxillary bones. The patient was relieved of pain, nasal breathing was restored, considerable strength was gained, and existence was endured with comparative comfort for eight weeks, when he returned with recurrence of same symptoms. In the meantime having received a copy of "Dawbarn's" then recent work upon the starvation treatment of these growths by exsection of both external carotids, we decided to attempt same upon this patient. Accordingly, in spite of adhesions, with very little difficulty opened up old incision, tied off the carotid below the superior thyroid branch, excised the trunk and its eight branches separately, pulling each with forcible traction down into incision, ligating and cutting between sutures. The wound was stitched up and, as before, healed by first intention. In examining nasal and antral cavities found them again filled with gumatous, cheesy masses, caused by rapid disintegration of superior maxillary bone, the most striking feature of which was absence of destruction of soft tissue. At this second operation only a shell of the right superior maxillary remained. At the articulation with the nasal process of the frontal bone, the sharp sagital frontal indentations were distinct and apparently intact, while all that could be found of the maxillary was an alveolar shell and part of the orbital process. The same cleaning out curettage having been undertaken, the patient received a few more weeks of tolerable existence. In six weeks he underwent excision of the opposite carotid in hopes of preventing establishment of collateral circulation. Operation was performed in twenty minutes without difficulty, leaving patient in very good condition except very full pulse. However, he died suddenly twelve hours later of thrombus. Results: A three months prolongation of life in some degree of comfort, the patient having been expected to die upon the table at first operation.

Case 2. John S., colored, age 55; carpet layer, sober. History negative. First examination showed externally chain of enlarged cervical glands, internally tumor of left middle turbinate and antral wall beginning to bulge into nasal chamber. Patient complains of pain, catarrh, and associate symptoms. Refused operation for twelve months as long as he could continue

work. By the end of that time there was an extensive multiplication and enlargement of cervical glands which extended from the mastoid process to the sternum and from the sternothyroid to the trapezius muscle. The man had become emaciated, lost appetite, and ran temperature. Tumor had occluded the left nasal passage, and the corresponding side of face had become more prominent and the discomfort so acute that patient consented to an operation. According to "Dawbarn's" method the external carotid upon the right or sound side was first exsected without difficulty. Four weeks later the same operation was readily performed on the opposite or diseased side and hypertrophied glands removed in same operation of an hour and a half's time. They were all sizes—from a shot to an egg; of all shapes—round to dumb-bell, where constrictions had occurred—and in all positions, underlying the muscles of neck as far back as under the trapezieus. The patient at this time seemed in a fair condition, and the mistake was made of attempting a hurried curretage of the intra-nasal growth with the fingers. Not having sufficiently lowered the head he inhaled a blood clot with the venous gush which always occurs at this time; being too weak to expel same died on table in spite of immediate tracheotomy.

Case 3. Mrs. T., housewife, age 73, came to the office November, 1915, emaciated, running temperature, and in sufficient pain to require morphine daily for relief. Externally, right side of face was swollen, eye almost closed, right nasal passage was completely occluded, and breathing only possible by mouth. She was removed to hospital, the right external carotid exsected and growth removed at one operation. We expected to do a partial resection of the right superior maxilla, but found absolutely none to resect except maxillary plate of the orbit, a small bit of the nasal process, and a slight shell of extreme posterior body of the bone, so contented ourselves with the curettage of the tumor. Three weeks later the left external carotid was removed in order to prevent collateral circulation and in hopes of impeding further extension of the growth. The last time the patient was seen, February 16th, temporal pulsation was absent, temperature was normal, external swelling was practically gone, appetite had improved, strength increased, nasal discharge lessened, and patient had not been compelled to resort to an opiate since first operation. There was, however, a dropping of lower lids, insufficient protection of eye, and some conjunctivitis. I regret now that the eye was not then enucleated, as by last report she is now having trouble with the eye and becoming weaker.

Of these three cases, would be very glad to omit report of the second as undoubtedly his life was shortened by our zeal in trying to accomplish too much at one operation. The carotid exsection, however, had practically nothing to do with his death. The life of the first patient, although a dissipated old man, was undoubtedly prolonged several months, and existence made tolerable the whole time. The undertaking of first operation upon him was attempted by the grave prognosis of surgical friends that he could live but a few days at best, and would probably die on the table. Am unable to say whether a little more attention to blood pressure could have delayed fatal results after last exsection as vessels were evidently atheroratous.

The third and last patient, although her days are numbered, her children and friends feel that they have been lengthened and rendered more comfortable.

My cases having all been old and hopeless, I can not form an opinion as to "Dawbarn's" report of numerous permanent cures of incipient sarcoma by the starvation method, nor have I ever attempted injection of the carotid branches; but my observation of the continued destruction of bone with its tendency to follow out one bone in its course would favor a resection of part or all of the affected maxilla and exsection of both external cartorid in incipient cases.

The value of carotid exsection is evident in almost all cases for the following reasons: It is not a very difficult nor a very dangerous operation; any physician of fair surgical ability, who has dissected a neck and will refresh his mind by reading over his anatomy, observing its cautions and possible abnormalities, can exsect an artery in twenty to thirty minutes with little shock to his patient and very slight after discomfort. It is necessary to remove both arteries in order to prevent collateral circulation, nor will a simple ligation do, but the entire trunk and as much as possible of the eight branches should be tied off and removed. Capillary circulation is sufficient for nourishment of tissues without fear of gangrene. Danger of alarming or fatal hemorrhage is absolutely relieved for all time; the field of which bled alarmingly at slightest disturbance is easily controllable by removal of the turbinates and inner antral walls, the growth can be removed at will, tension and pain controlled, discharges and odor lessened, cleanliness promoted, and the general wellbeing of the patient improved.

With the hope that the wisest of you can add to his wisdom from the humblest experience, and that the most ignorant of us can diminish his ignorance by the sympathetic and intelligent criticism of this society; in conclusion, I beg leave to submit, that any means which can mitigate the sufferings of these hopeless and helpless people is worthy of consideration.

DISCUSSION.

Dr. J. G. Murphy, Wilmington: I have very much enjoyed this paper which compiles his experience along this line. Our offices are in the same building and on the same floor, and he has told me of some of his experiences with these cases when he was treating them, and I am glad to have this history of them presented together.

We all that do nasal surgery know how our patients complain at having to breathe through the mouth for twenty-four hours after an operation on the nose while it is packed, and here is where we may gain

something practical from the paper just presented in the possibility of relieving the obstruction and affording comfort to a patient already in a run-down condition by opening the nasal passages.

I think Dr. Koonce has handled these cases skillfully. I have had no experience in this line myself, but he has encouraged me to undertake this line of work if I had similar cases to come under my care.

Dr. J. M. Crawford: Of course, we want to keep our death record as low as possible. So I would suggest that in all such cases, we send them to a surgeon.

I remember one of these cases coming to me in a few months after I began to practice. I diagnosed his case nasal polypus. I removed the polypus, but he died in a few months from the sarcoma that had accompanied the polypus.

Dr. Koonce: I don't see anything to say, except that Dr. Crawford's advice to turn these cases over to the general surgeon needs no discussion; each one has to decide for himself. My three cases were all old people. We can make them more comfortable, and prolong their lives weeks or months.

SOME COMPLICATIONS AND SEQUELÆ FOLLOWING OPERATIONS ON THE TONSILS.

C. W. Banner, M.D., Greensboro, N. C.

The subject of this paper suggested itself to me after an examination and study of the end results of a great many throats that had been operated on, both by myself and others; and leads me to the conclusion that many of us have been doing tonsil work without a proper study of final results, and have sacrificed a great many tonsils that might better have been left alone, and also that we have operated on many cases in a way that was not to our own credit or the patients' best interest. If we leave in place, *diseased* bases of tonsils with enlarged crypts that will hold cheesy deposits, to make a breeding place for pathogenic bacteria, or if we cut or remove part of the anterior or posterior pillars of throat, causing scar tissue to form with its inevitable contraction on healing, or allow the edges of the pillars to unite in a false position, forming pockets for the retention of food and debris, we have not only done no good, but may have left the throat of our patient worse off than when we found it. Of the complications following tonsillectomies, perhaps the

most common one and one which gives us most concern, is *post operative hemorrhage,* and I suppose that all who have ever done much tonsil surgery has had more or less experience with this complication. All have seen the so-called *bleeders,* but my own experience and observation, lead me to believe that there are in reality very few cases of excessive post-operative hemorrhage from this cause; and that the large majority of hemorrhages come from enlarged or misplaced vessels that have unavoidably been cut, or else from the use of *sharp* cutting instruments in severing the *vessels* at the base of the tonsil; or perhaps from cutting or lacerating the front edges of the pillars, thus severing small vessels in the muscular tissue, which tissue by its more or less continuous contractions and relaxations, prevents the blood from forming a sufficiently firm clot in its severed end to control the bleeding.

The treatment of these hemorrhages, like most other troubles that we are called upon to treat, should be first of all *preventive,* and I believe that most of them *may be* prevented, and the following rules, if adhered to, will certainly reduce cases of post-operative hemorrhages to a minimum:

1. Ascertain before operation if patient is a bleeder.
2. See that there is no acute inflammation present in tonsils, or if present, that it is reduced to a minimum, by treatment, before operation is undertaken.
3. Do not operate on adult females during or just preceding their menstrual period.
4. Use blunt dissection as far as possible in removing tonsils.
5. See that all hemorrhage has stopped before patient is allowed to leave operating room.
6. Keep patient *quiet,* in *bed,* with head elevated, and allow no visitors.

With regard to first rule, we would say that the finding of a family history of hemorrhagic diathesis, or even a direct history of a bleeder, does not necessarily prohibit us from operating on the case, if the patient is in *urgent need* of operation, for if we properly prepare the patient, and carefully perform the operation, we may do so with very little danger from hemorrhage. It has been my custom in such cases to put them on a good tonic, and diet them for two or more weeks, then give Elixir Chloro-Calcium Compound for about one week, then to operate on one tonsil only, taking great care to produce as little traumatism as possible, using a blunt dissector for separating the tonsil, and remove the lower part of base with a cold wire, tightening it very gradually and allowing the vessels time to contract, and clot to form, as they are being severed; then keep my patient very quiet, in bed, with head and shoul-

ders elevated and with chipped ice in the mouth, until all tendency to hemorrhage has ceased. It is my custom in all cases after removal of tonsil to make pressure with gauze over the tip of my finger into the fossa from which the tonsil has been removed, until hemorrhage has about ceased, before beginning operation on the second tonsil. By doing this, I seldom find it necessary to ligate a vessel or apply a hemostatic clamp, or even use a styptic.

As regards the second rule, would say that of course we find some cases where there is *always* more or less inflammation present in the tonsils at all times, and it is impossible to get the throat entirely free from inflammation until the tonsils (which are the predisposing cause) are removed, but we should see to it that this inflammation is reduced to the minimum and that no *acute* infection is present at the time of operation.

The third rule needs no discussion.

With regard to the fourth rule would say that it is my custom to start the dissection with a sharp tonsil knife, but as soon as I have the front part of the pillars separated, I finish the dissection with a dull dissector, and cut off lower part of base with a cold wire snare, usually in a Beck's Tonsillectome. In this way I am able to reduce hemorrhage to a minimum and am less liable to cut the pillars or to leave small particles of the gland in place, either of which are a predisposing cause of post-operative hemorrhage.

The fifth rule is one that I think we are not quite as careful in carrying out as we should be, and that is to see that all hemorrhage has stopped before the patient is removed from the operating room. There is nothing that so frightens the patient or the parents as blood, and if we can keep the sight of blood and blood stained towels, cloths and clothing from them, they are never so nervous about the case, and besides it is rather an embarrassing and unpleasant duty to have to take a patient back to the operating room to stop a hemorrhage, after they have once been sent to their room.

The sixth rule applies to all operations on tonsils and should be rigidly enforced, *quiet* in *bed*, is imperative, and if we elevate the head and shoulders, there will be less tendency to hemorrhage. Exclusion of visitors (unless perhaps the mother, if the patient is a child) I also think is important, for all visitors seem to feel called upon to talk to the patient, and of course, the patient must of necessity answer back to some extent; so absolute quiet cannot be maintained if visitors are allowed. I always caution my patient against efforts to cough or clear the throat, as these often start up hemorrhage, and if I notice a tendency to *cough* I give a cough sedative. If there is any tendency to oozing, I give them

chipped ice to hold in their mouth, and often apply ice pack around outside of throat.

Infection is another not uncommon complication following tonsil operations, and is one that is not always preventable. It occurs to some extent in a large percentage of all cases operated on, but usually is trivial in its consequences if treated promptly, and I am persuaded that it may be prevented in most cases, if proper treatment and preparation of the patient is carried out before and during the operation. No tonsil should be operated on that has an acute inflammation or infection present at the time of operation; the patient should be in the best possible physical condition, as he will thus be able better to resist infection. The anæsthesia should be just sufficient to keep the patient quiet during the operation, and the operation must be done as quickly as is consistent with thorough and complete enucleation. No loose shreds of tissue should be left dangling from the operated field, and all the bleeding should be stopped before the patient is dismissed from the operating room. The preparation of the patient should also include spraying the parts with an alkaline antiseptic spray at intervals for several hours before the operation, and I think the suggestion of some one, recently published in one of the medical journals, to apply a 25 per cent to 50 per cent solution of the tincture of iodine over the tonsils, just previous to operation, is a good one, and also the liberal use as a mouth wash of a 1-500 solution of permanganate of potash during the healing process. This not only acts as an antiseptic, but as a styptic as well. Quiet rest in bed is also of importance, as it promotes healing and *lessens* the *tendency* to hemorrhage and consequently of infection also.

Injury to the voice is another sequel of tonsil surgery that should give us concern, for it is one that frequently means much to the patient, especially if the patient be a singer or public speaker, or anticipates engaging in any vocation or calling in which he will need a clear voice, and *distinct* enunciation. My experience and observation lead me to believe that this is a very rare sequel following tonsil operations that have been carefully and properly performed, and certainly this is the case with regard to children, for I think there is almost always improvement in vocal resonance following a carefully performed operation in young subjects. There are several theories as to the cause of loss or injury to the voice in these cases. One is that it is due to injury to one of the branches of the recurrent laryngeal nerve which supplies the muscles of vocal organs. Another theory is that the vocal organs have accustomed themselves to the obstruction caused by the presence of the enlarged tonsils and that any disturbance of this relation of the parts disturbs voice production. This, I think, is *usually* true temporarily, but

it has been my observation that the vocal organs soon adjust themselves to the new condition of things and that the final result is an improvement in the voice. Another theory, and one that I think accounts for almost all cases of *permanent* alteration of voice, is that it comes from contraction of the scar tissue following these operations; and while in the majority of cases there should be very little contraction from this cause, still in a few cases that are very adherent or where the gland itself is made up largely of fibrous connective tissue which is very firmly adherent to the pillars, we will find it impossible to enucleate the tonsils without wounding the pillars to some extent, and this, I think, accounts for the large majority of permanent alterations of voice that we see as a result of tonsil operations.

Clipping the uvula, lacerating the palate, cutting or pinching the lips, or injuries to the teeth or gums of the patient are complications that are usually due to carelessness in operating, and as a consequence are inexcusable.

Accidents or complications from anæsthesia in these cases are of course the same as in all other surgical operations, except the added danger of getting blood or vomited matter into the trachea, and the usual precaution of having the stomach and bowels empty applies with greater emphasis in these cases. I know of few surgical procedures that when properly done and in properly selected cases, will result in greater benefit to the patient; neither do I know *many* in which the end results are more disappointing if the operation is not properly and *carefully* performed. The longer I work at this class of cases, the more I am convinced that it should be classed with the major operations of surgery; that it is always a *hospital* operation and one that should *usually* be done under general anæsthesia.

DISCUSSION.

Dr. H. H. Briggs: I think that the papers of Drs. Russell and Banner, as well as the paper by Dr. Lilly, are very timely and that it would have been fortunate had all the doctors attending the general session had the opportunity of hearing these papers.

The matter of hemorrhage after tonsil operations has given all of us great concern. To avoid it the patient should be well prepared, including attention to his general condition. He should have, two nights preceding the operation, a drastic purgative, or else, the preceding day, a large dose of castor oil. This depletes the system and lessens the chance of hemorrhage. The blood pressure should be taken in all adult cases. The operation is one for the hospital. Another matter of great importance, is the care which the teeth should receive for a week or

more prior to the operation, and any infected areas attended to. We should take into consideration that we have a wound that cannot be dressed and that the foul condition of the mouth is a continual source of infection.

As to the cause of hemorrhage, the method of operating has much to do. Those of us who have been practicing for fifteen or twenty years remember how much more frequent was hemorrhage in former, than in recent years. This due, no doubt, to the fact that formerly only a portion of a tonsil was removed where, at present a complete enucleation is done. The sclerosed tonsillar tissue prevents the contraction of the bleeding vessel. Again it is much more difficult to seize the bleeding point in a tonsil than it is in the peritonsillar tissue. It is very important that all bleeding is checked before the patient is put to bed. Formerly I relied upon a compression forcep, until I had a few very serious hemorrhages notwithstanding its application. Then for years I relied upon and used successfully the little metal clips. These were hard to remove but were usually very efficient; but not until I found that a tonsil hemorrhage should be dealt with just as is hemorrhage in any other part of the body, was I quite sure that I was capable of dealing with it. Retract the pillars, dry your wound, find the bleeding point, fix it with a long hemostat, and tie it off as would the general surgeon.

Method of anæsthesia has also an important bearing. With general anæsthesia there is more hemorrhage at the time of operation but less danger of post-operative hemorrhage. In local anæsthesia, especially where adrenalin solution is used, there is less danger of an immediate hemorrhage, but by far a greater danger of post-operative hemorrhage. Formerly, when using local anæsthesia almost exclusively, I had on an average of two or three very alarming hemorrhages a year, and now that I have been using ether in nearly all cases, I have not more than one or two alarming hemorrhages in two or three years. I have never had the misfortune to lose a case, nor to have a patient alarmingly exsanguinated. One class of cases in which we should avoid general anæsthesia, especially ether, is in active tubercular cases, or those which have recently been active. A close chest examination should be made in every case where general anæsthesia is contemplated. I have known a few such cases to die in a few months after the tonsil operation where a general anæsthetic was used.

Dr. J. B. Wright: The subject of tonsillar hemorrhage is exceedingly interesting to me.

The last two tonsillectomies I did bled for me. Both these cases were done in my office under local anæsthesia, one bleeding from a local point

at the time of operation and the second bleeding about two or three hours after the operation. The bleeding in the second was from almost the entire tonsillar fossa and of an oozing nature. This form of hemorrhage is the one I dread most. In this particular case the patient was sent home with absolutely no bleeding and ordered to be put to bed and kept quiet—not talking or swallowing any more than was absolutely necessary. In about two or three hours a 'phone message was received, telling me Mrs. C. was bleeding too freely. Upon my arrival I found a slow capillary oozing from both tonsillar fossæ, which I did not think severe enough to demand sewing the pillars together. There was no local bleeding point, therefore nothing to ligate or clamp, unless I packed the cavity and ligated the pillars, and that I did not do. I used adrenalin and cocaine locally and ice cloths around throat and gave 10 cc. normal serum.

In the first case I ligated the bleeding vessels at time of operation. My method of tying off bleeding vessels is as follows: Clamp the bleeding vessel with a long hæmostat, make some traction with the hæmostat and anchor (with a curved needle threaded with No. 1 catgut) your suture *below* the hæmostat and tie it above, then remove hæmostat.

In reference to the choice of method of anæsthesia, I must say I do not believe there is an operator living that can remove a tonsil with as little trauma and do it as easily under general anæsthesia as he can under local. We all have to use general anæsthesia in children. But when the patient is old enough to have self composure, I always advise local. My method of using local anæsthesia, is to paint a small area all around the tonsil with a 10 per cent solution of cocaine. I am careful to touch only a small area—making three or four applications at intervals of three or four minutes. I then with a curved tonsil needle inject freely a one-fifth of one per cent solution of cocaine, to which is added one-half dram of one to one thousand solution of adrenalin to an ounce of the cocaine solution. Since I began using this formula I have never had any trouble with blood (unless I cut a stray vessel). I find it is highly satisfactory, as my patients claim it does not cause any pain.

Dr. J. H. Tucker: This is one of the most interesting subjects in my work. When I first began tonsil work I insisted upon a general anæsthetic. That was some ten years ago, and the changes in tonsil work have been so great that I could scarcely record during this present session all of the methods that have been suggested to me for the removal of tonsils. Several of which I have tried, and to be frank with you, there is nothing in my profession of the past that I am more ashamed of than some of the throats that I have operated on.

Now as for general anæsthesia: There are cases for general anæsthesia and there are cases for local anæsthesia. Of course, in children, general anæsthesia must be used, but after fifteen years of age, it is to my mind a question of selecting your patient from a standpoint of nerves more than a question of the effect of the anæsthetic employed. Some patients will stand a local anæsthetic beautifully.

I do not believe that when novocaine is properly used there is the slightest pain in the operation, but the gagging and sight of blood is to some patients intensely painful. My choice as a local anæsthetic is a 2-per cent novocaine solution. As a general anæsthetic, ether.

I cannot agree with Dr. Wright when he says that he can operate better under local anæsthetic. I feel that I can do my tonsils, either in children or in adults, more satisfactorily and quicker with a general anæsthetic, and Sleuder's method is the one of my choice.

Coagulen-Ciba is a splendid remedy to control bleeding when injected in a 5-per cent solution into the base of the tonsils before operation.

Dr. J. M. Crawford: This is one of the most important subjects before the medical profession today, and if we specialists handle it aright, we will do well. However, I am afraid we are going *wild* on the subject of operations on the tonsil.

I was in London in 1913, attending the International Congress, and while there I listened to the best men in the world discussing this same question—such men as Dr. Davis, Sir St. Claire Thomson, Dr. Whale, all from London; Dr. Luk of Paris; Dr. Berger of Amsterdam; Dr. Alexander of Vienna. Their plan was to divide the patients into two classes: first, those that were over twelve years old; and second, those that were younger than twelve. In those cases that were over twelve years of age, they advocated tonsillectomy; and those that were under twelve years of age, as a rule, tonsillotomy was made. I think this a very good plan to follow, since we do not yet know the function of the tonsil, and until we do know this function, we should go slow in removing tonsils unless their condition demanded it.

I know the fashion now is, to make tonsillectomy in every age and under the slightest provocation.

I admit that many tonsils have to be sacrificed, and whenever there is trouble with a tonsil after twelve years of age, I think it best to remove it entirely; but before that age, best to save the tonsil, if possible, for a while longer.

I prefer making my tonsil operations in my office, under cocaine anæsthesia.

I use a hooked instrument to lift the tonsil pillar, cutting with a pair of long scissors; a pair of long foceps to hold the tonsil after the operation is well begun. When the tonsil is cut loose from the sides of the pillar and from its upper attachment for about three-fourths of the tonsil, I finish the operaton with the guillotine.

By the by, I heard Sir St. Claire Thomson say that he used a guillotine in the removal of every tonsil operation that he had made in the last five years.

In the use of the guillotine, as I have spoken, you avoid the danger of so much bleeding. I hold that it is not necessary to be so particular about removing every particle of the tonsil from the lower angle, but that every particle of the tonsil should be removed from the upper angle. Bleeding most usually comes from the lower angle.

Dr. Briggs has well said, that a tubercular patient should never be given a general anæsthetic for a tonsil operation. A local anæsthetic should be used instead.

In England, as well as on the continent, ethyl chloride is the great favorite in this operation.

Dr. J. M. Lilly: I want to mention an operation I saw last month in New York. Dr. LaForce, of Chicago, had been there about ten days before I was there, and demonstrated a new instrument. It was the best instrument for tonsil work I had ever seen.

The opening in this instrument is oblong rectangular. It is placed over the tonsil, and tonsil is fed into it by the finger. It has a thick blade, and he drives that down, and leaves it there six minutes on the tonsil. Beside of that blade is a sharp cutting blade, which presses down and cuts it off. You can look into the throat, and it does not look like there had been any operation done immediately afterward. I saw one hemorrhage on the table after removing it, but the operator did not leave it on more than about one-half minute before cutting tonsil off.

EYE SYMPTOMS REFERABLE TO GENERAL DISEASES.

J. M. Lilly, M.D., Fayetteville, N. C.

The relationship which the organs of sight bear to the remainder of the human body makes it very important that one, who attempts to treat the various abnormal conditions manifesting themselves in the eye have a good working knowledge of the anatomy, physiology and pathology of the entire human economy.

To go into all the signs and symptoms manifesting themselves in the eye, but due wholly or in part to some constitutional disturbance, would require a volume rather than a short paper to be read in a few minutes, so I will have time to call attention to only a few of the most important of these with which the general practitioner and the oculist are constantly coming in contact.

The oculist should never examine eyes without keeping constantly in mind the fact that the symptoms he is besought to relieve may be due to a remote cause, and always search for that cause. On the other hand, the general practitioner should, as far as possible, acquaint himself with the various eye manifestations of constitutional diseases, and add to each physical examination, when the symptoms are at all obscure, an examination of the fundi of the eyes. By so doing he would frequently make an early diagnosis which would otherwise be overlooked until later, and thereby much valuable time might be saved in administering the proper treatment. It goes without saying that no one can be a competent oculist unless he be a competent physician; nor can a man attain the most in general practice unless he avail himself of the information to be gained by eye examinations, either by acquainting himself with the work or calling upon a competent oculist when the occasion may demand it.

In this brief discussion we will consider only:

Syphilis	Brain Tumors
Nephritis	Tobacco and Alcohol Amblyopia
Diabetes	Locomotor Ataxia
Rheumatism	Gonorrhea

Syphilis. The eye is one of the most frequent locations of the secondary and so-called tertiary manifestations of syphilis, and is more frequently involved in this disease than any other special sense organ. Chancre may occur on the eyelids or conjunctiva, but this is rare as these are not often the location of the initial infection. There is a very foolish custom among many machinists and railroad employees of removing cinders from each others' eyes with the tongue, and cases of chancre in this location have been caused in this way. Any of the cutaneous manifestations of syphilis may occur on the eyelids. Gumma of the lids may first look much like a meibomian cyst, but sloughing and contraction take place later. The lachrymal apparatus, the sclera, the choroid, the retina, each may suffer, but the cornea is more frequently involved than any other structure of the eye. It was pointed out by Hutchinson years ago that interstitial keratitis, with a certain degree of deafness, associated with peg-like incisor teeth are pathognomonic of

inherited syphilis, while other authors claim that the interstitial keratitis may occur in the acquired form of the disease. Iritis is met with in every stage of syphilis, and not infrequently is the first symptom noticed. It is conservatively estimated that one-half of all cases are due to syphilis, and while I do not think this is true in the smaller towns and country, I doubt not that the percentage is even higher in the crowded cities, where there is much more venereal disease. These cases are prone to relapse and both eyes are likely to be involved. Not infrequently large golden thickenings occur in the iris and are spoken of as gummata of the iris, though usually a secondary symptom. The ciliary bodies are usually secondarily involved, producing syphilitic iridocyclitis. The syphilitic changes occurring in the iris and ciliary bodies lead to the softening of the sclera and a bluish white ring around the cornea near the limbus. Choroiditis is too, perhaps, fifty per cent due to syphilis, or even more. Syphilis may cause optic neuritis, opaque lenses and orbital periostitis.

Nephritis. In this disease the oculist is often first to make a diagnosis because eye symptoms are frequently the first evidence of it, and he is consulted before the general practitioner is. The ophthalmoscopic picture is often definite enough to make a reasonably accurate diagnosis, which should always be substantiated by urinalysis and measuring blood pressure. Albuminuric retinitis is not always present in nephritic cases where the vision fails as a result of the disease, for there are many cases of visual disturbance due to the toxemia where the fundi are normal in appearance. The prognosis when albuminuric retinitis is present (except in cases of albuminuria of pregnancy) is exceedingly grave, most cases dying in from a few weeks to two years, but complete recovery does take place, as I myself have seen. The condition of hardened arteries and high blood pressure, which is present in almost all cases of chronic nephritis, also manifests itself in the ophthalmoscopic appearance of the blood vessels in the retina. For instance, where a thickened, hardened artery crosses a vein it causes a distinct obstruction to it, the veins appearing larger and fuller on the sides away from the disc. I have taken the blood-pressure in many cases in which the ophthalmoscopic examination suggested nephritis or arteriosclerosis, and have almost always found it high and occasionally above 300 systolic. Not in all of these cases, however, have I found albumin or casts, but I feel sure that there always exists in such cases a chronic interstitial nephritis.

Diabetes. The ophthalmoscopic picture in diabetes is about the same as in nephritis, except for the fact that the exudate does not have the

same symmetrical arrangement as is found in nephritis. Cataract is more common in this latter disease. In nephritis eye symptoms are often the first intimation of disease, while they are usually of late occurrence in diabetes.

Rheumatism. Rheumatic involvement of the eyeball may occur in the course of a rheumatism, or may be the only symptom present. However, there is usually a rheumatic history. It is prone to recur. Episcleritis in which there are localized patches of scleral injection or edema with a violaceous tint often occur, lasting a week or two or longer, and recurring at intervals of some weeks or months.

Iritis relapses and recurs and may attack one or both eyes, more frequently both, but at different times.

Glaucomatous eyes are prone to exaggerations of symptoms if rheumatic iritis exists. Cataracts and vitreous opacities may result from this condition. Clinicians of wide experience estimate that one-fourth of uveitis and optic neuritis are due to rheumatism.

Brain Tumor. One of the most reliable signs of brain tumor is the peculiar ophthalmoscopic picture known as choked disc. It should be borne in mind that there may be a neuro-retinitis from other causes, and on the other hand that all cases of brain tumor do not cause eye symptoms. The differentiation between choked disc and neuro-retinitis is in many instances an arbitrary one.

Von Grafe was first to call attention to the so-called choked disc. The various paralyses of the eye muscles help in cerebral localization when a brain lesion is present.

Tobacco and Alcohol Poisoning. This condition is not infrequent. The symptom most marked is amblyopia or amaurosis and a dry congestion of the eyes known as "Smoker's Red Eyes." The field of vision is first centrally involved, whereas, in optic atrophy it suffers first in the periphery.

Locomotor Ataxia. In this disease we have the so-called Argyll Robertson Pupil in which the iris responds to accommodation and convergence but not to light. This often precedes other symptoms of locomotor ataxia by several years.

Gonorrhea. This disease attacks the eyes in two distinct ways: (1) Local infection with pus, which manifests itself in a violent purulent conjunctivitis, the cornea often ulcerating and breaking down and a general panophthalmitis following. (2) Due to the constitutional condition that causes the joint symptoms of gonorrhea or the so-called gonorrheal rheumatism, and is much like rheumatic iritis.

DISCUSSION.

Dr. R. H. Lewis, Raleigh: I have heard the paper of Dr. Lilly with a great deal of pleasure. There is one thing in the very beginning I cannot entirely agree with him in. I do theoretically agree with him that a competent surgeon should be a competent practitioner. I do think every one should have a general working idea as to general medicine, so he will know when the help of a general practitioner, who knows how, is needed.

But it is absolutely necessary to divide the work out. It is impossible for one man to be a first class general practitioner and a skillful specialist at the same time.

Now, in regard to the choked disc. I wish to call attention to the fact that it is not only caused by tumor of the brain, but by any coarse disease of the brain, as abscess and so on.

In his consideration of tobacco amblyopia the doctor does not mention the central scotoma for red and green which is so characteristic as to be practically the pathognomonic symptom. And I think we should not pass over the fact that atrophy of the optic nerve is sometimes the earliest symptom of that very serious and hopeless disease, locomotor ataxia.

But what has interested me most, recently, is the causative relationship between pus pockets and inflammation of the uveal tract. I cannot think for the moment of any disease of the eye, when syphilis can be excluded, that, heretofore at any rate, has been more obscure as to cause and more resistant as to treatment than inflammation of the uveal tract or irido-cyclitis, as we are generally accustomed to call it.

In an admirable paper read by deSchweinitz before the State Medical Society of Iowa about a year ago this matter is discussed in an illuminating manner. The sites of confined pus are usually the teeth (root abscess, or Riggs' disease) the tonsils, the accessory sinuses of the nose, and the urethra. In one remarkable case the cause of the eye-trouble was found in an unsuspected nest of gonococci behind an old stricture 20 years after the original infection. When not specific we generally attribute this class of eye diseases to rheumatism, but what we have been in the habit of calling rheumatism we now find is often caused by this same kind of infection from pus pockets. And the removal of the pus and thorough disinfection of cavity will, in some cases at any rate, promptly relieve the uveitis that has proven so intractable to our old established methods, which, however, should not be abandoned. The lesson of all which is that in inflammations of the uveal tract that are not of luetic origin we should always look for accumulations of pus,

resorting to an X-ray examination of teeth and sinuses before giving it up.

I am sure Dr. Lilly's paper will be of value to all of us because I do not think that as a rule we are careful enough in looking for possible remote systemic causes.

Dr. Crawford: I did not intend to say anything on this subject. Dr. Lewis says that it is not necessary that we specialists be good general practitioners. I thoroughly agree with him. I began the special work in a few weeks after I had my diploma.

There is one subject on which I would like a little more discussion, and that is choroiditis. The doctor here says that choroiditis is always from syphilis. Dr. Lauber, who was formerly associated with Dr. Fuchs in Vienna, says that, choroiditis is most usually from tuberculosis.

My old colleague, Dr. Calhoun—one of the best men in America—led himself to believe he could with the ophthalmoscope tell when a man was smoking too much.

The history that I get from the patient is what I go by. I remember a good woman, about thirty years old, coming to our office in Atlanta, or rather was led there, who had been blind for about two months. Dr. C. first gave her an examination; but, thinking there was no hope for the patient, sent her into my office, simply that I should look at her. I decided that I would see if I could find out the cause of her blindness. I asked her many questions, but to no avail. I finally asked her if she used snuff. She said, "No, but I smoke." A white woman, thirty years old, and much above the average in intellect, blind from smoking, was quite unusual for me. I never would have thought to have asked her the question if she had not owned up to it. When I asked her why it was she smoked, she said, "You know I told you I was raised in town; and I married a farmer, who carried me to the country where my nearest neighbor was five miles: we had a little girl who lived four years and then died. I was very nervous and lonesome. I thought of my grandmother, how she enjoyed her smoking; so I began to smoke, and the bluer I got, the more I smoked. I smoked all day long."

I gave her strychnia, also a solution of iodide potash, and scolded her for smoking. I received a letter from her three months later, saying she was able to see as well as ever.

Of thirty cases of tobacco amblyopia treated by me, each one was caused from smoking a pipe, not a one from a cigar or cigarette.

Dr. T. W. Davis: It is quite interesting to hear these discussions on the relation of general diseases to the eye. I recall a recent case of

chronic appendicitis in which there was paralysis of accommodation, and in which the paralysis of accommodation was only relieved by appendectomy. Such effect on the ciliary muscles is probably explained in a reflex way through the vaso-motor and sympathetic nervous system.

Dr. Lilly: I would like to say it seems that I have made a wrong impression in regard to my paper. I do no general practice of medicine. I wish to call attention to our having general working knowledge of these things, so we may know when we want to refer our case to some one else. I do take blood pressure, make examinations of urine, etc., but I don't pretend to do these things as well as the man that does them every day.

I did general practice four years, and I feel like every day that the experience I got in those four years has been a great help to me in trying to work out my case along special lines.

I think there is no question but that the point that Dr. Crawford made in regard to tuberculosis being a cause of choroiditis is entirely correct. At the same time I do feel that in view of the fact that all of us who make eye examinations so often find choroiditis in syphilis that we are justified in the conclusion that many cases are syphilitic.

PARASITES THAT PREY UPON THE HUMAN BODY; THEIR EFFECTS, IMMEDIATE AND REMOTE.

Thomas W. Davis, M.D., Winston-Salem, N. C.

On a parallel with parasitic blight of vegetable life is bacterial blight of the human body. The scrub oak and the insect ridden fruit trees, whose production is nil, or one-third, or one-half of what it should be, has its counterpart in the human being of the neurasthenic, neuralgic, rheumatic, and chronic faulty digestive type. The blighted tree will invite the hand of the ax, unless it can have rational and effective help; and likewise unless the blighted human being can have rational and effective help, disease will lay the ax to the root. Thanks for the same, the tree is getting the right help, and the time is not far distant when the human being will get the right help.

These organisms of the human blight are old acquaintances of ours; just the usual pyogenic or pus germs, staphylococci and streptococci, which in their acute and active life present us with the three or four cardinal symptoms of abscess. Then we very promptly, boldly, and

rightfully proceed with the lancet; and just as promptly forget this little enemy of, and whose natural habitat is, the human body. We have overlooked entirely the chronic and passive life of these organisms, but let me tell you an area of infection the size of a small shot is a poison factory in operation every hour of the twenty-four, putting its output in varying degrees into the circulation of the individual. A poison in infinitessimal amount can be a poison when put directly into the circulation, as exhibited in the effect of some of the alkaloids.

These pus organisms are essentially anaerobic and thrive only when shut off from the air, therefore we would look to find them living in crypts, pockets, and hidden places; just so in plenty we find their homes in the gums around the teeth, in the crypts and peritonsillar spaces of the faucial tonsils, in the follicles of Luschka's tonsil, in the maxillary antrum, in the ethmoidal cells, in the frontal and sphenoid sinuses, in the middle ear, and possibly in other parts of the body. But most of all in the head, because of its vulnerability. It is here that all material, air, food and water, that may be germ laden, enters the body. Then, too, it is here these micro-organisms find ideal hiding places in which to continue their chronic and more or less passive existence. A statement is made by a reliable dentist, giving authoritative statistics of his profession to the effect that ninety-two per cent of all disease is caused by disease of teeth or gums. If modified so as to say that ninety-five per cent of all disease is caused directly or indirectly by chronic infections about the head, I believe in its truth, and that it can be fully verified.

What are the effects of a chronic pyogenic infection? (First) *Local effect* is a congestion or sub-acute inflammatory condition. If about the head, such a condition as is commonly termed catarrh, or bad cold, a pharyngitis, laryngitis, or bronchitis. There is annoyance, though rarely actual pain experienced from the local condition per se.

(Second) *General effect* is primarily a slow toxæmia, and resulting anæmia; secondarily, muscular weakness and nerve exhaustion, on which is based disease conditions and symptoms too numerous to catalogue. Here are a few: muscle weakness of stomach and intestinal walls, spelling indigestion and constipation, and all the ills to which a faulty digestion may lead. From an *autointoxication* coupled with *germ intoxication,* nervous disorders common are, neurasthenia, melancholia, insomnia, neuralgias, headaches, neuritis, and rheumatism. (The last not strictly of a nervous character.)

The most serious resulting organic lesions are of the *heart,* (valvular and muscular) and *kidneys.* Making it a routine practice to analyze the urine and take the blood pressure of adults whose history points to the individual's having carried a chronic pyogenic infection for a long time,

I have found vascular changes and nephritis in such individuals, women whose lives and habits have been exemplary, and in whom the pathologic condition could be accounted for in no other way than from the effects of a long continued poisoning from areas of infection found existing.

Returning to the effect, *muscular weakness,* both kinds of muscle are affected, especially the unstripped variety: (For where found see Gray's anatomy page 68) and note especially these locations: walls of the whole of the gastro-intestinal tube, beginning with the lower half of the œsophagus; walls of trachea, bronchi, alveoli and infundibuli of lungs; largely the muscle tissue of the sexual organs and bladder; walls of blood vessels; and iris and ciliary muscle. Impaired vision and eye function from muscle insufficiency (intrinsic and extrinsic) is common. Experience has taught me not to promise or expect any improvement in these conditions until satisfied no area of pyogenic infection exists from which absorption can take place. I have recently seen and treated for chronic pyogenic infection in throat two cases (female) in which an annoying symptom was from weakness of the sphincter of the urinary bladder, being just one of the manifestations of a general muscle weakness that existed.

So long as something like a normal well being is maintained the individual may not harm himself, or allow others to harm him, but when the body inconveniences, pain, lack of energy, and run down feeling comes, he looks for help. Here enters the patent medicine and drug habit, the use of artificial stimulants to help him in a measure to meet the demands of the day; or it may be treatment of one kind or another for the *effect,* and paying not the slightest attention to the *cause.* Such is the only basis on which osteopathy exists today. Such has been the happening in the treatment of many cases of so-called rheumatism, the in-put of the poison factory going hand in hand with extreme sweating and depletion to the limit; that limit being death. A personal knowledge and acquaintance with the facts enables me to make this statement.

When we consider that lowered body vitality and resistance invites the invasion of infectious disease, and adds to the difficulty in the way of recovery, once the disease is contracted, what has this influence had on the human death rate in the past, and what is it having today? Chronic pyogenic infection about the head is the one great predisposing factor in all disease, and doubly so in those diseases primarily of the throat and respiratory tract, because of the local condition being one of par-excellence for their reception; most commonly tuberculosis, pneumonia, diphtheria, and scarlet fever. The pyogenic organisms are the hand maidens of the tubercle bacilli; firstly in the preparation of an ideal dwelling place in a below par human being; lastly, in adding a finishing touch

to their work, for it is the sepsis of pyogenic origin that kills. No satisfactory progress can be made in the preventative or curative treatment of tuberculosis until the right attention is given to stamping out the existence of pyogenic organisms.

This brings us to the consideration of just what this stamping out process means. In the first place it must mean a concerted action on the part of the medical and dental professions. It is right that the medical profession take the initiative, and from it the public gain a knowledge which it, the public, is entitled to, as a matter of public health and prevention of preventable disease. Whatever of wisdom there is in the great plan of the Creator providing for the affliction of man, it cannot be otherwise than that God sorrows for, and pities the great horde of weaklings, dyspeptics, and those suffering all kinds of pain and incapacities; men and women who should be comely of face and form, grown old and ugly, and invalid at an age just when they should begin to build the structure for the happiness and continuation of the human race; the despoiling of a form made in the image of God Himself. Will the medical profession arise to its possibilities for helping the situation, or will it be content to longer treat disease from the standpoint of effect alone, and sooner or later be held in derision by a people no longer patient and unknowing; and it may be have the hand of Almighty God point and say, "Thou art the man"? Guilty not of willful murder, but of criminal negligence. Picture the helpless creature, pale of face, with anxious, searching eye, as he peers around the nearest corner haunting the doctor's office for a prescription. When first his pain was soothed with drug, had any one half way exhausted available means to find and treat the cause of his pain?

What is needed is a universal situation of safety, when it is the rule and not the exception, that people appreciate the harm to health and danger to life in carrying an area of chronic pyogenic infection anywhere in the body; and when a thorough painstaking, conscientious, skillful investigation, in each individual case is the routine practice of the profession. We have here and there the case that stands out to show the value of such practice. The dentist will find a deep pocket of pus in the tissue under a perfect fitting plate; nothing acute, no signal to point the way. He knows the possibility of its being there and searches for, and finds it. He relieves a rheumatic sufferer (of year's standing) and prolongs his life. This is a true story related to me by the dentist (also an M.D.) himself, and at the time he showed me a handsome diamond given him by his patient as a slight token of gratitude. Again the case history is published for a prominent member of the medical profession, in which the removal of infected adenoid tissue stops the

source of poisoning and cures a case of rheumatism; or again a case of supposed chronic malaria is found to be none other than the poisoning from a chronic infection of the maxillary antrum. The every day annoyances of bad colds, catarrhal secretions, foul breath, ugly complexions, people have taken as a matter of course, and this has flourished to a shameful degree the use of chewing gum, cosmetics and paints, Stuart's dyspepsia tablets, Hyomei, etc., (as representatives of their class these last mentioned patent preparations.) If this were all we might pass it up, but if the profession is in any sense guardian of the public health, it can not stand by without a warning and an effort to prevent such conditions as toxæmia, anæmia, and malnutrition are responsible for; such are all the neuralgic and rheumatic conditions, lesions of kidneys and heart, and a susceptibility that renders the individual a prey to all the infectious and contagious diseases. Considering the rapidity with which the pus micro-organisms reproduce themselves, and the opportunity given them for passing from one individual to another, there is no wonder at the widespread infection that exists.

Conditions to be met in treatment are not always easy. In the first place, to locate all infected areas requires painstaking, patient and skillful service. Requirements for the eradication of the infection are *drainage, ventilation,* possibly the *application of germicidal agents,* or the *complete removal of infected tissue.* The case or difficulty in meeting these indications depends more or less upon the location and extent of involvement.

In the matter of correct advice and service so essential to the welfare of people, may we so measure up to our responsibilities and possibilities, that when the shadows gather at the close of our day we may collectively and individually have the assurance which says, "I have not only done my duty, but have glorified the work whereunto I was called."

Somewhat in explanation and apology for reading a paper so general in character before a special section, I wish to make the following three statements:

1. That one of the most, if not the most important factor in the promotion of public health, lies in the finding and proper handling of areas of chronic pyogenic infection in the human body.

2. That dentist and nose and throat specialists more than any others are directly concerned, since these infections are almost invariably in or about the head.

3. That there is an almost universal lack of conception of the meaning of a chronic pyogenic infection in its relation to ill health and disease of the human body. The need is for universal appreciation, so that the one to whom the sufferer of chronic indigestion comes, instead of pre-

scribing a diet, digestive agents and tonics, his first thought is of the existence of a chronic pyogenic infection. If the complaint is neuritis or rheumatism, he turns to the same first thought instead of to the salicylates, and sweating. If nephritis, to the same thought instead of eliminating meat from the diet. If suspicious or incipient tuberculosis, to the same thought, because unless he eliminate a sepsis of pyogenic origin, there is absolutely no help for his patient.

PEDIATRICS

NEWER METHODS OF DIAGNOSIS IN PEDIATRICS.

Dr. Albert Smedes Root, Raleigh, N. C.

Some notable and interesting advances in the diagnosis of diseases of children have been made in the past few years, and from a review of the literature bearing upon the subject, together with observations, which I have recently had occasion to make in some of our most scientific pediatric institutions, I shall present in a brief way those means which seem to me to be the most useful and practical. These are: the use of the X-ray, especially in studying intrathoracic lesions, the Schick reaction, and the anaphylactic skin reactions in diagnosing food poison.

In addition to physical signs indicative of pathological states, namely, D'Espine's and MacEwen's signs respectively have engaged the attention of pediatrists.

The X-ray. While the value of the X-ray in diagnosticating fractures, dislocations, diseases of the bones and joints, rickets, and chondroplasia has been for years generally recognized—Roentgenology, as applied to intra-thoracic lesions, has but recently become a routine measure in all our modern hospitals. With this larger use of the X-ray, the results have been gratifying in proportion, and by its use many positive or early diagnoses, which otherwise could not have been made, are possible. In our smaller institutions, only a restricted number of patients can afford the expense of a skiagram, but the time is rapidly approaching when even these will have an equipment for making satisfactory exposures. I might refer, as an example, to the hospital in my own town, where recently a handsome outfit has been donated upon the expressed condition that all city charity cases entering the institution shall have made, whenever indicated, an X-ray plate free of any charge whatsoever. The morbid conditions revealed in these skiagrams are lobar pneumonia, tubercular broncho-pneumonia, sometimes miliary tuberculosis, empyema, hydro or pneumo-thorax, enlarged mediastinal glands, various heart abnormalities, and enlarged thymus. In lobar pneumonia the shadow is seen before the physical signs of consolidation can be detected. Weill and Mourequand, in 350 skiagraphed cases, show the shadow triangular in shape in the earliest stage, with the base at the periphery and apex at the root of the lung. This corresponds with the observations of Mason and other writers.

In cases of tubercular broncho-pneumonia in the latter stages, not unfrequently has there been found at autopsy a cavity at one or the other apex which was not recognized in life because amphoric was confused with puerile breathing. Here the X-ray discloses the lesion and the extent to which inroads have been made.

In miliary tuberculosis, while there is a general failure of health and probably hacking cough, the only physical sign usually encountered is the occurrence of scattered rales usually in the nipple region. A positive diagnosis in these cases can frequently be made by the X-ray casting small spotted shadows on the screen, aptly described as "measles on the lungs." While a positive Von Pirquet would be very significant in such a case, the positive diagnosis can only be made by the X-ray.

In case of empyema, not only can the condition by the aid of physical signs be diagnosed, but its extent and localization.

In cardiac conditions, Roentgenology is again of great value. It helps, in conjunction with the pulse and temperature, to determine the damage done to the heart by the size and shape of the shadow. Often one has to differentiate between an organic and a haemic murmur. Here the X-ray helps us out of the difficulty again. In distinguishing between a pericardial effusion and cardiac enlargement, the X-ray is of the greatest value.

Inasmuch as this means of diagnosis is particularly well adapted to children, any obscure intra-thoracic condition should be investigated through its use wherever possible.

The Schick Reaction. While the Schick Reaction does not diagnosticate a morbid entity, yet it does determine a susceptibility to such a state, and hence I think may properly be included in this discussion. The administration of diphtheria antitoxine in immunizing doses to individuals exposed to the disease as a prophylactic measure, is no longer modern medicine. The Schick Reaction places in the hands of the general practitioner a ready and practical method for determining one's susceptibility to Kleb-Löeffler infection.

It has been only a few years since diphtheria was regarded as one of the highly contagious diseases. Now we know through the agency of the Schick test that 93 per cent of the newborn, 57 per cent of children under one year of age, 37 per cent of those between one and five years, 50 per cent of those between five and fifteen years old, and 90 per cent of all adults possess a natural immunity against diphtheria.

While this is fortunately true, it is quite necessary to guard those exposed who are susceptible against the disease. The administration of diphtheria antitoxine as a prophylactic has served this purpose, yet its use has been fraught with no inconsiderable inconvenience and even

with danger. The urticaria and myositis experienced ordinarily when antitoxin is administered is at best, far from pleasant. The expense is a factor to be considered, especially in a large family. Furthermore, serious and even fatal anaphylactic reactions have been known to occur, when a second dose was administered at some later exposure or illness. By the simple application of the Schick Reaction, the positive cases or those susceptible are discovered, and to these antitoxine, or preferably, toxine-antitoxine, as Park recommends, should be administered. The latter produces both an active and positive immunity.

The toxine for the Schick test is placed upon the market at a very reasonable cost by the National Vaccine and Antitoxine Institute, Mulford Company, Park-Davis Company, and other similar concerns.

The principle of the reaction is, that in each individual there is naturally a certain amount of diphtheria antitoxine. When a minute amount of diphtheria toxine (.2 cc. of normal salt solution containing $\frac{1}{50}$ of a minimum lethal dose of diphtheria toxine for a guinea pig) is injected into the skin, if there is sufficient amount of the natural antitoxine in the blood to protect the individual, the toxine is neutralized and there is no reaction. If there is not a sufficient amount, then the toxine injected is not neutralized and there is a local reaction to the poison, manifested by the appearance within twenty-four hours of a circumscribed area of redness and slight infiltration which measures usually about $\frac{1}{2}$ to 1 inch in diameter. The height of the local reaction is seen at the end of seventy-two hours. It persists for seven to ten days, and on fading shows superficial scaling and pigmentation.

For carrying out the test it is necessary to have an accurately graduated hypodermic syringe—preferably a Record syringe—and a small needle. The toxine is injected intradermally, care being exercised not to penetrate the true skin. The appearance of the skin after injection is that of a small blister and it is best placed upon the flexor surface of the forearm. The value of the test is undisputed.

Of 800 patients showing a negative Schick in the Willard-Parker Hospital for contagious diseases in New York City, who had been exposed to active diphtheria, not one contracted the disease. In many of our modern institutions for children's diseases the Schick test is carried out as a routine measure. In my own practice I have found its use most valuable and helpful and far less troublesome than the administration of the antitoxine.

Anaphylactic Food Reaction for Ascertaining Food Poison. By anaphylaxis is meant the hypersensitiveness of an individual to a specific foreign proteid. This sensitivity is often manifested in children by the "exudative diathesis," the symptoms of which are skin eruptions, usually

a form of eczema, a strong tendency towards asthma and an eosinophylia. In any child presenting this combination of symptoms there is a strong probability that he or she is suffering from a specific foreign proteid poison. Just what food contains this offending proteid, whether fish, egg, milk or what not, is a matter of conjecture on our part. If, however, the specific proteid food causing the trouble were injected into the skin, or the skin inoculated with it, there would be a local reaction because of the child's sensitivity to it. This phenomenon of anaphylaxis enables us, therefore, to determine often the specific food which is poison to the child, and gives us a scientific basis upon which to regulate the diet. A few months ago in the children's ward at Bellevue Hospital, New York, some of the pediatrists were using raw products containing proteid food—beef, pork, the white of egg, milk, etc., for making the tests. Scarifications are made upon the arm by a Von Pirquet scarifier and the foods rubbed in. A positive reaction is manifested by the appearance of an urticarial wheal, within a few minutes. Strickler and Goldberg in the January 22d number of the *Journal A. M. A.*, describe methods of preparing various proteid foods for hypodermic injection into the skin. The local anaphylactic reaction by this method is expressed in a papule with some induration which persists for at least forty-eight hours. In the twenty-nine cases, all having the exudative diathesis, reported upon by these gentlemen, two were sensitive to milk, two to tomatoes, one to pork, two to fish and crab, one to crab alone, one to cow casein and beef, one to cow casein alone, while a number of the other reactions were suggestive.

Upon the withdrawal of the offending article of diet, a number of these cases cleared up in a remarkably short time.

This new field of work, now in its infancy, offers splendid possibilities, and there will no doubt be placed upon the market food preparations in a convenient form to be given in everyday practice.

Physical Signs. The two physical signs to which I referred at the beginning of my paper are, D'Espine's sign, for detecting certain diseases at the root of the lung, and MacEwen's sign elicited where there is increased intracranial tension, as in meningitis.

D'Espine's Sign. Coley in 1846 pointed out that a "tuberculosis process in children usually commences in the bronchial glands and remains often unnoticed, especially when unattended by a cough for a considerable length of time and that the suppuration or softening of tubercles in the bronchial glands very rarely occurs without corresponding disease appearing in the lungs." Nevertheless, until D'Espine described a sign in recent years which he had frequently noticed in case of enlarged

bronchial glands, was it thought possible, by physical signs to detect them, on account of their lying so deeply within the thorax.

He stated that in young children the whispered or softly spoken voice normally ceased at the level of the 7th cervical spine posterially. In case of enlarged glands about the root of the lung it is heard over the upper thoracic spines as well. The enlarged glands may be due to tuberculosis, malignancy, leukemia, syphilis or Hodgkins disease, or to a simple adenitis.

The sign is best elicited with the patient in the sitting posture, the head flexed and arms folded. The patient is made to say "three-thirty three" while firm pressure is made with the stethoscope over the area examined. When positive the final "e" persists for a moment as an echo. "This post phonal quality is the significant feature." A good deal of discussion about, and difference of opinion in, the value of the sign has taken place, but it is certainly fair to say that much evidence has appeared in its favor. Among its advocates are Smith and Sweet, who reported in *American Journal of Diseases of Children* seventy cases with positive D'Espine's, ninety-three per cent of whom showed positive X-ray findings at the hilum.

MacEwen's Sign. MacEwen pointed out that in certain conditions, where the cerebro-spinal fluid was increased, if the stethoscope were placed on the forehead, just above the base of the nose and the skull tapped with the percussion finger over the parietal region—a high-pitched, sharp, short crack-pot note was heard. Beginning just over the parietal boss, the percussion finger is made to approach the stethoscope and as it does so the note diminishes in intensity and character. This latter is important in differentiating between a false and true MacEwen —the opposite holding true in case of the normal skull, *i. e.,* the note is louder nearer the stethoscope.

As in D'Espine's sign some difference of opinion exists as to the value —but this may be due, as Wilcox points out, to the fact that no definite standard has been set for the normal skull at different ages, and those having different conditions of sutures and sizes of the fontanelles.

MacEwen, himself, stated that a "skull may be so thin or so thick that it cannot vibrate at all." In congenital hydrocephalus for instance, where the walls of the cranium are thin plates and sutures completely open, nothing save a dull note is obtained.

Hessman and Feldstein contend that MacEwen's sign is of no significance before the closure of the fontanelles, but that the crack-pot note occurs after the closure.

Wilcox, in the *Archives of Pediatrics,* reports upon a positive MacEwen in 50 or 53 cases of tubercular meningitis, with one case doubt-

ful. Six were under one year of age, 29 between one and two years, and 16 over two years. "In all of these" he says the sign appeared before or at the same time as the development of other symptoms.

Eighteen cases of acute meningitis of various types other than tubercular were observed, among which there was only one in which MacEwen was lacking.

Five cases of poliomyelitis all gave a positive MacEwen sign, with reduction in intensity after removal of vertebro spinal fluid.

Two children were admitted for chronic otitis media with marked symptoms of meningeal irritation. Their spinal fluids showed increased volume and pressure. The MacEwen sign was strongly positive at first and persisted so long as cerebral signs continued. Because of the more or less marked cerebral symptoms, the MacEwen test was applied to 13 cases of pneumonia. In 5 of these lumbar puncture was considered justifiable and an increase of normal spinal fluid under pressure was demonstrated in all five. The sign was positive in eleven cases, questionable in one and negative in one."

DISCUSSION.

Dr. A. S. Root, Raleigh: Since writing this paper, in the *Medical Journal of Diseases of Children*, Dr. Morse, Professor of Pediatrics, Harvard University, states that he has analyzed 166 cases in private practice, and he agrees that the D'Espine sign is positive whenever there are enlarged glands between the trachea and spine.

THE CALORIC VALUE OF INFANT FEEDING.

Dr. J. B. Sidbury, Wilmington, N. C.

The caloric requirements for the working adult have been very carefully determined, the heat-expenditure and the food intake with a certain definite amount of exercise calculated. The amount of food required for such work has been definitely determined and the proper number of calories needed to meet this metabolic process accurately determined. But not until recently has there been any attempt to calculate the caloric needs of the infant or rapidly growing child. What was done was to give the child the breast when possible, and when such was not possible, the battle in the dark began, that of finding some food the infant would take, or could take, and live on it, the greater per cent of them either did not do well, or finally died. Those

who got results did so by ordering by empiricism, and it has only been within the past twenty-five years that anything really scientific has been done in infant feeding. The first intelligent step was the attempt to get a food that corresponded as nearly as possible with that of mother's milk. Though the milk of many animals has been tried with varying degrees of success, that of cow's milk has been found next best to mother's milk, when properly diluted. The fault with cow's milk is usually not with the milk, but with the individual who prescribes it, though the fault is usually laid to the milk or to the infant's digestion.

With the progress in infant feeding, as with every other progress or development, some particular thing has been selected to explain away all shortcomings and defects, and each in turn has not stood the test when standing alone. First, after deciding that cow's milk was the proper food for babies when breast milk could not be had, it was thought that the proper sterilization of milk would solve the problem. However, much to our sorrow, clean milk has not solved the many problems in infant feeding, though it has played a very important role. Next, it was said that all the troubles were due to the proteids in cow's milk, which are more difficult of digestion than the proteids of mother's milk, and next came the fats, and finally the sugars were charged with the fault. Still some one else says that the proper way to feed the child is to determine the amount of calories needed, give this amount, and your troubles will be solved. But this method, as all others which have been used alone, has fallen short the mark.

Before going further we must define what we mean by a calorie. And where I use calorie here I mean the large calorie. A calorie is the amount of heat which is required to raise the temperature of one litre of water one degree centigrade. It matters not from what source this amount of heat is raised. It may result from the combustion of coal, wood, or gas, or by the combustion of fats, sugars or other foods in the process of metabolism. It is that definite amount of heat and may be derived from any source. Every animal of whatever variety liberates a certain amount of heat, and life depends upon their ability to produce and liberate this.

In summer time there is much more heat liberated than is necessary to keep up the body temperature, and by means of evaporation the body is able to get rid of this extra heat. Theoretically, then, we should fast in the hot weather and eat bounteously in very cold weather, if the main factor was that of maintaining heat equilibrium. Should there be only as much heat energy taken in as given off, there would not be any supplied for replacement metabolism or tissue growth. We cannot determine the amount of food needed to produce growth and development

by the amount of heat energy liberated. Hence, we may say that the caloric method alone is not a safe guide in successful infant feeding, or, as for that, any feeding.

Caloric Requirements. According to most recent authorities, the normal healthy baby requires:

Age.	*Total Caloric Needs.*	*Calories Per Lb.*
1- 3 Mos.	400- 500 Calories	50
3- 6 Mos.	500- 700 Calories	45
6-12 Mos.	700-1000 Calories	40
1- 2 Yrs.	1000-1100 Calories	35
3 Yrs.	1100-1200 Calories	35
4 Yrs.	1200 Calories	35
8 Yrs.	1400 Calories	30
12 Yrs.	1600 Calories	25

While this will not fit every baby any more than any one food will fit any one baby, it is given as an average, which will be found to be sufficient in the majority of the cases and will be a landmark from which to work.

But it is not the above baby that we as pediatritians and physicians have trouble with. The normal baby has wide limits of variation in his digestive ability, which is very untrue of the marasmic, or premature baby, and it is with this baby that our skill and ingenuity as infant feeders are tried so thoroughly. The ability of this type of baby to digest food is limited, and, in addition, this baby requires more calories per pound of body weight than the normal baby, which, as we can easily see, makes the task doubly difficult.

Grulee says that 45 calories per pound will prove to be the maximal calorie requirement in 24 hours in a vast majority of cases. He gives charts showing gain in weight going parallel with the increase in calorie values up to a certain point, which point he calls "maximum tolerance of food," and says that when the total calories are pushed beyond this point the maximum tolerance for food falls, and likewise a fall in weight. This "maximum tolerance," according to him, is rarely above 45 calories per pound of body weight in 24 hours. While such observations may hold true in a great many cases (normal babies), I think we will frequently find children, or infants, who will require much more, as much as 50 to 60 calories per pound before a satisfactory and steady gain in weight is established. This is unquestionably true with the premature and marasmic babies, as well as many others not so poorly nourished. Such babies frequently require 60 to 75 calories per pound of body weight, and, though I always believe in starting low with the feedings and working up, to find our "maximum tolerance," I do believe we

may lose much valuable time with these poor babies by starting lower than 40 calories per pound of body weight in 24 hours. It was my privilege while in the New York Foundling Hospital to have charge of a very large number of babies who were below par physically, and of many marasmic babies, and I think I would not be underestimating the case at all if I say that every one of the marasmic babies received not less than 50 calories per pound, and many received 60 calories and above, which amount was found by experience to be necessary to produce and sustain any satisfactory gain in weight. While it may be said that these cases were exceptional, in that they were institutional babies and not a fair sample, the same experience was not infrequently met with in the Babies' Hospital Dispensary, New York, and I have met with the same experience in the Babies' Clinics in Wilmington. Many of these babies are started as low as 40 calories per pound, and lower even, to avoid intestinal upsets, and to get a line on the baby's digestion, though it was always necessary to increase to 50 calories per pound and above, to get any satisfactory gain in weight.

It has been held by Finklestein[1], Getting[2], Mayerhafer and Roth[3], that infants under weight require more calories than those well developed, and they claim that they should get as many calories as if they had nomally developed.

Dennett[4] says that the average normal baby will do well on from 110 to 120 calories per kilogram, and that emaciated babies require from 150 to 170 calories, and the only moderately emaciated from 130 to 150 calories per kilogram in 24 hours.

FACTORS DETERMINING CALORIC NEEDS.

Habits of healthy, as well as of sick infants, vary with the individual. As these individuals vary, so their caloric needs vary. A child who is phlegmatic and sleeps most of the day and night, will certainly not consume as much heat energy as one who moves around, and is kicking or crying the greater part of the 24 hours. By means of experiment, it has been shown that the metabolism may be increased from 40 to 100 per cent "above the basal metabolism" by a change from repose and quietude to active exercise or work. Breast fed infants require less energy units than artificially fed infants, because it is believed that it takes less energy to digest and absorb breast milk than cow's milk.

The physical condition of the food must always be considered if we think intelligently of infant feeding. It has been proven by animal experimentation that 40 to 100 per cent of the energy or caloric value of a food may be consumed in digesting it. It has also been proven by Armsby that an animal will die of starvation on certain kinds of food

more quickly than if they were not fed at all. This can be explained by the fact that much energy is consumed in the attempt to digest this food and but little food value was gained therefrom, a negative balance having been produced.

METHODS OF DETERMINING CALORIC VALUES IN MILK MODIFICATION.

If we wish to figure out the caloric needs of any child, all we need to remember is that a child at birth should have 50 calories per pound, and at one year 35 to 40 calories per pound in 24 hours, and that an ounce of fat yields 300 calories, and one ounce of proteid and carbohydrate each yields 130 calories. With this information at hand, one can in a moment compute the caloric value of any food and compare that with the caloric needs of the individual child.

For example, if one is feeding a 20 pound baby of 10 months on 5 bottles of 8 ounces each, or 40 ounces of milk modification containing 3 per cent fat, 6 per cent sugar, and 3 per cent proteid, we estimate the caloric needs by multiplying 20 pounds by 40, the caloric needs of a child that age, and we find we need 800 calories. The caloric value of 3 per cent fat in 40 ounces is 3 per cent of 40 ounces, or 1.2 ounces, which, multiplied by 300 calories, the value of one ounce of fat, gives 360 calories of fat in our mixture. The caloric value of proteid and carbohydrate is the same—130 calories each to the ounce; so they can be added together and our 6 per cent sugar and 3 per cent proteid give us 9 per cent of our 40 ounces, or 3.6 ounces of sugar and proteid, which, mutiplied by 130, the caloric value per ounce of each, gives us 468. This added to the caloric value of our fat, gives us 828 calories, the total caloric value of the food.

Another method of calculating caloric values of milk percentage mixtures is one recommended by Fraley (Arch. Ped., 1912, xxix, 123) which is very simple, but not so accurate as the above method, but under ordinary circumstances serves the purpose, if we remember that it is a little low:

Let F=percentage of fat, S=the percentage of sugar, P=percentage of proteid, and Q=total quantity in 24 hours, then
$2F+S+P\times 11/4Q$=Total Calories.

A ready method of calculating caloric needs for well babies is this one, which is noted for its simplicity and the ease with which it may be used. For example, take a child of 8 months who weighs 20 pounds. This child should have 40 calories per pound of body weight in 24 hours. Multiply 20, the number of pounds, by 40, caloric needs per pound, and we get 800 calories needed. If we subtract from this 120

calories, the caloric value of one ounce of milk sugar, which we usually give, we have 680 calories. Now if we divide 680 by 20, the caloric value of one ounce of milk, we will get the required number of ounces of whole milk required for the 24 hours, which is 34 ounces. If the child is 8 months old, he should get 5 bottles of 8 ounces each, giving a total quantity of 40 ounces for the 24 hours. Hence our formula for this child will be written:

Whole Milk .....34 ounces Boiled Water ..... 6 ounces Milk Sugar ..... 1 ounce	=Calories 800.

Proteid Requirements. Caloric feeding may have all the factors properly proportioned and in sufficient quantity, but this is not necessarily true, and here I wish to emphasize one important fact in all infant feeding,—that as well as having a sufficient caloric value to our food mixture, there is one thing imperative to the proper growth and development of the baby, and that is a sufficient quantity of proteid to meet the needs of the growth and development of the tissues, as well as the minimum to balance the katabolic processes. The average proteid need of a baby is at least 1.5 grammes per kilogram of body weight, or .7 gramme per pound of body weight. Though there are unquestionably not a few babies who require as much as .9 gramme per pound of body weight in 24 hours. We know that the majority of the babies we feed get more protein than this minimal requirement, and the excess does not seem to do any harm. However, if this minimal requirement is not given, the child will not thrive, but if the proteid content is kept below .7 gramme per pound in the feeding for an indefinite length of time, the child will eventually die of malnutrition, no matter how high the caloric value of the food may be. Fats and sugars may replace each other, and proteids, to a limited extent, may replace the two of them, but neither fats nor sugar can replace the proteids of the food, that is, for the minimal proteids needs.

If we choose to give the baby a proteid content in the food just sufficient to cover the tissue waste, or that amount which is just sufficient for katabolism, the baby will live but may show signs of malnutrition and will not thrive properly. The other extreme may be obtained where we get a very fat and apparently a very healthy child, but such babies are not sound; the proper growth of the muscle tissue and bone structure will be found to be lacking. This baby is not infrequently well illustrated in the condensed milk baby or the proprietary food baby, in which foods the fat and proteid content are very low in comparison with the sugar content. When the proper dilution is made for the sugar

content the proportion of proteid and fat is relatively very low. According to John Lovett Morse the proteid needs are:

Age.	*Total Proteid Need.*	*Proteid Need Per Kilo.*
4 yrs.	55 grammes	3.5 grammes
8 yrs.	60 grammes	3.0 grammes
12 yrs.	75 grammes	2.5 grammes

5 grammes less of proteid for girls, 5 grammes more for boys. Minimum proteid need ⅔ of above.

CALORIC VALUES OF DIFFERENT FOODS.

I. Table of Food Values.

		Calories	Grammes		
			F	C	P
Whole Milk	1 Quart	670	38	43	34
Skim Milk	1 Quart	400	10	43	35
Gravity Cream	1 Pint	860	77	22	14
Buttermilk	1 Quart	360	5	43	35
Whey	1 Quart	260	5	43	9
Beet Juice	1 Ounce	10	------	------	2
Crackers	1 Ounce (1)	120	3	20	3
Bread	1 Slice (3)	75	0.5	15	3
Zwieback	1 Slice (4)	120	3	20	3
Shredded Wheat Biscuit		105	0.5	22	3
Oatmeal and other Cereals (Cooked)	1 Tablespoonful	25	------	5.5	1
Rice (Cooked)	1 Tablespoonful	45	------	10	1
Potato	Size of Large Egg	100	------	20	2
Macaroni (Cooked)	1 Tablespoonful	30	0.5	5	1
Egg	Whole	72	5	-----	7
	Yolk	60	5	------	4
	White	12	------	------	3
Meat / Fish (Cooked)	1 Ounce (2)	60	3	------	7
Butter	1¼ inches cube=1 Ounce	225	24	-----	------
Olive Oil	1 Tablespoonful	125	14	------	------
Sugar (Cane)	1 Rounded Tablespoonful	25	----	6	------
(Milk)	1 Rounded Tablespoonful	60	------	15	------
Green Peas (Cooked)	1 Tablespoonful	40	------	7	3
Carrots / Squash / Turnip (Cooked)	1 Tablespoonful	30	-----	6	1
Orange (Medium Sized)		50	------	13	------
Apple (Medium Sized)		70	----	17	-----

1. Crackers vary so much in size that they must be weighed to determine how many it takes to weigh an ounce.

2. The lean of a lamb chop weighs about an ounce; so does a piece of meat 1¼ inches cube.

3. Bread—1 slice 4 inches square and three-eighths inch thick=1 ounce.

4. Zwieback—1 slice=large slice.

Clear soups and broth made without rice or barley are practically no nutritive value.

The nutritive value of the "fodder" vegetables—such as spinach, string beans, asparagus, lettuce, tomatoes and cucumbers—is so slight that it may be disregarded.

II. Proprietary Foods.

	Fats Per Cent	Sol. Carb. Per Cent	Starch Per Cent	Protein Per Cent	Water Per Cent	Inorg. Salt Per Cent	Cal. Val. Per Oz.
Nestle's Food	4.45	51.39	28.43	11.47	2.53	1.73	160
Mellin's Food	0.24	80	----	11.50	4.73	3.59	120
Eskay's Food	1.16	67.81	21.21	5.82	2.70	1.30	128
Malted Milk (Horlick's)	8.78	67.95	----	16.35	3.06	3.86	135
Imperial Granum	1.04	1.80	76.21	14	9.23	0.39	120
Ridge's Food	1.11	1.80	76.21	11.81	8.58	0.49	120
Condensed Milk	11	57	----	12	20	2.25	85
Unsweetened Condensed Milk	9-12	14	----	10	65	2	58

III. Specially Prepared Milks.

Albumen Milk from Whole Milk	2.5	1.5	----	3	----	----	13
From Fat Free Milk	1	1.5	----	2.75	----	----	----
Buttermilk	1.25	3.38	----	3.78	90.62	65	10
Whey	.96	5.49	----	.94	92.13	48	56

It has been proven by Allen, theoretically speaking (Arch. Ped., 1907, xxiv, 899), that the nitrogen equilibrium of the child can be maintained by one ounce of milk to each pound of body weight, and to meet the needs of growth and development 1½ ounces of milk per pound of body weight in 24 hours should be given. This covers the nitrogen loss of tissue waste as well as supplies sufficient nitrogen for the growth and development of the body. Grulee says that his clinical observations correspond very closely to this theoretical calculation of Allen's.

In feeding infants we have certain definite facts and limitations to keep before us. The food elements are limited to four ingredients, viz., fats, carbohydrates, proteids, and salts, and every baby must have these articles in its food and no others.

To thrive, every baby must get a sufficient amount of food and this sufficient amount is determined by its value in calories and the baby's ability to digest same. As I have attempted to show above, babies at certain ages and under certain conditions require a certain number of calories per pound of body weight in 24 hours.

While I have attempted to go into some detail as to caloric needs of the different child or infant, which, as I have shown, varies under certain circumstances, and have given the caloric values of the different foods, we would be led astray if we got the idea that our armamentarium was now complete and thought that feeding of infants was a matter of a few simple calculations. Unfortunately for the child, such is not the case, or the many difficulties in infant feeding would have long since been solved. To my mind, we have only attempted to reach the stage of preparedness when we have these facts settled and at our fingers' tips. We must ever bear in mind that a food may contain a sufficient number of calories and a sufficient amount of proteid to meet all needs and at the same time be very unsuited for the baby, or it may suit one baby's digestion and be very unsuited for another baby of the same age. As Talbott & Morse have aptly put it, our task after mastering all the above details is getting the "food to fit" the digestive capacity of the individual infant.

A more practical solution, it seems to me, is to consider each infant an individual who has a choice of certain foods, and that while one food may be assimilated easily, other foods equally as valuable may be utterly useless and even harmful. Because two foods contain the same elements is no reason why they are equally good for any one child. Even we, as adults, have a choice whether we shall have our toast buttered with butter or with lard; both being fats and of equal caloriosis—no reason why they should be interchangeable in our diet. This preference for some food elements and rejection of others is a very definite and impor-

tant factor in infant feeding, and must not be ignored if success would crown our efforts.

Chapin says: "The successful feeder is the one who gets the infant to taking some suitable food and then adjusts the ingredients so that they are in sufficient quantity to carry on the normal chemical changes that take place in the body and allow storage of tissue other than fat, and at the same time produce proper functional development."

Howland says: "By clinical observation and not by physiological or chemical determination must the superiority or inferiority of a diet or a method of feeding eventually be established."

The main points I wish to stress in this paper are: First, that every infant is an individual to himself or herself wholly, and the feeding of every child is an experiment to find out the "food to fit" and no child can be fed by any fixed rule or formula. Second, that the main value to be gained in the caloric method of infant feeding is that it serves merely as a check on our work. The calculation of the caloric value of the food will show us whether our failure to gain in weight is due to insufficient amount of food or to other causes than this. On the other hand, if the baby has a disturbance of digestion on a food which was thought to be all right, calculation of the caloric value of the food will show us whether the disturbance is due to overfeeding.

With this system, as with many other methods, there has been a tendency to over-emphasize the importance of "Caloric Feeding." I do not wish to underestimate or to not sufficiently emphasize the value of caloric determination of the food of every infant. I think the food of every infant should have its caloric value determined and the number of calories required for 24 hours per pound known, but I also wish to emphasize that its main value lies in its value as a check to us as to whether we are over or under-feeding. And while caloric feeding is a good general guide we still have the most important point before us—that of getting "feedings to fit."

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OBSTETRICS

OBSTETRICAL PREPAREDNESS.

Dr. B. G. Allen, Henderson, N. C.

We hear national preparedness on every hand these days, and it seems timely to discuss some measures whereby the "Cannon Fodder" may be ushered into this world under the most favorable circumstances without subjecting the mother to so many serious consequences.

It is not the purpose of this paper to try to enlighten the brethren on the technical side of this question, but I hope in a few minutes to stress the importance of teaching the expectant mothers the necessity of having themselves cared for during their pregnancy as well as at the actual confinement.

All of us know with what pride of accomplishment so many mothers of Israel relate that they have had ten or more babies without a doctor, and nothing happened to them. Thanks to a kind Providence! They lose sight of the fact that a goodly per cent of the mothers lose their lives before or during labor from eclampsia that may be warded off, or at least ameliorated.

How to teach them the dangers of pregnancy without alarming them too much and so defeat our purpose, is a great question. Certainly the general impression among the laity that pregnancy and labor is in the nature of a log rolling frolic must be dissipated along with the idea that gonorrhœa in the male is no more than a bad cold, and that no man is a gentleman until he has had his dose.

This cannot be done by the public health authorities alone, but it must be impressed upon the mothers by the doctor's treatment of the cases that do realize their condition by consulting a physician early. We must impress upon them the essential features of keeping well by regular habits in eating, sleeping and keeping the excretory functions up to normal. By repeated examples of such safe conduction through this most trying experience the neighborhood mothers will in turn realize the important fact that they too deserve the best possible attention, and that it is false modesty not to place themselves under the care of a competent physician long before the neighbors suspect the real cause. They should be trained to present themselves at the office at regular intervals to have their blood pressure taken, bringing with them a morning

specimen of urine and in the case of primipara the pelvic measurements, taken so that you can assure them that normal delivery is possible. This will go a long way towards allaying the mental dread that must be depressing upon one who is often alone the greater part of her time. It will likewise save the accoucher much chagrin and worry when he meets with a deformed pelvis in which cesarean section is indicated. For often we find these cases in the hands of ignorant midwives who have wasted valuable time in "letting nature take its course," when she should be taking the first train to the nearest hospital where, under aseptic surroundings, a healthy baby and mother may be the happy outcome of this otherwise hopeless condition. We should cite such cases to our patients as the reason for taking the precautions which may seem to them wholly unnecessary and repugnant to their refined sensibilities.

A recent experience with the very prevalent idea among the laity that a doctor is not needed until labor is actually on hand, impressed me very much. I had been engaged to attend a woman whose last pregnancy was thirteen years ago. I requested and insisted upon her sending a specimen of urine to the office, which she never did. I called by one day, and she jokingly sent me word that when she needed me she'd send for me. Weeks went by and no word from her. I went again and found her blood pressure 180 mm., her urine loaded with albumen. I made another special trip to get her to come to the hospital for treatment and observation. She would not consent to come, but asked to be given until the next day to consider it, as she was feeling so well. I consented to this arrangement and put her on cathartics and diuretics, as I felt that my consultant would have counseled that much delay. She had a convulsion and fell in the fire the next morning, while I was on my way to see her. Forcible delivery in the hospital and accepted measures of combatting the condition proved useless, and today the little boy is battling with cow's milk and no mother to rear him, nor to care for her girls, just blooming into womanhood, when they need her so much.

The knowledge that we are able to prevent such situations by careful oversight should be spread abroad over the land by tactful and timely advice to those mothers and fathers on hand at such occasions.

Our aggressive and efficient whole time health officer in his talks at the Mothers Meetings throughout our county is doing his part along this educational line by claiming that every baby has a right to be properly conducted into this world, and not to depend upon chance and ignorant midwives on this important occasion.

Were the physicians as a whole to take up this matter, it would not be long before our obstetrical work would be on the increase, and cer-

tainly it is to our interest to spread this doctrine abroad in the land, as this is one of the unpreventable conditions, and none of the scientific or sociological agencies are looking for a serum or antitoxin to prevent them.

DISCUSSION.

Dr. Cyrus Thompson, Jacksonville: I don't mind having all that is coming to me, but I am too old to be renamed. I want to state publicly that there is no W in my name. My father had a great many children and was economical in the use of names. He gave them all one name and let us go at that. The mistake you made is frequently made by others of my friends, however.

I will not attempt at this late hour and in the limited time allotted to me to enter into a discussion of Dr. Allen's paper. I heartily agree with what he says, and I wish that a man might, as he ought to do, have supervision of his obstetrical cases before the time of their confinement comes on. Of course, he ought to see that his woman is in good condition and bring her up to the period of her labor in good physiological condition. I want, however, to refer to this fact, that those of us who work in the country and small towns, know nothing at all about a large portion of our obstetrical work until the urgent call comes. Take a man practicing as I practice. In at least half of my obstetrical work, if not two-thirds of it, I know nothing about my woman or her condition until the call comes, urgent, in the day time or in the dead hours of the night. I have never seen my woman before. For the relief of a woman in that situation, I have to do only the best that can be done at the time. For the help of a man situated as I am in the general practice of medicine, there is need of popular education. I know not how we will get to it. Possibly we might with the other matters of public health. The women ought to be taught that the coming of the baby is a very serious time and that the advent of the child into the world is one of the most important events that will touch her life or her household. Competent preparation ought to be made for its coming and the house set thoroughly in order. I do not know that time would permit me to say more than this. After all, my friends, the world and the folks in the world are wonderfully ignorant; and if there is a crying crime to be picked out from a multitude of crimes, perhaps there is no greater than this, that men and women marry, neither of them with a knowledge of their own needs or the legitimate demands of the human race. Neither the man nor the woman has any reasonable conception of the responsibilities that rest upon them for the welfare of the mother and the child.

Dr. T. E. Anderson, Statesville: In my practice I have had a great many of these cases and met with sundry complications. I listened to both of these young men with pleasure, also the young man who discussed the paper, and I think their positions are tenable, entirely so, and are well taken. It is from papers of this class that we receive the greatest benefit. There is no question but that Dr. Thompson stated exactly the status of these cases. We are summoned to these cases without any previous knowledge of them and are just simply left to our own devices, and have to take care of them the best we can. Of course, we can all use antiseptic precautions when we get there. And I think it is remarkable how well we do get out of these cases. I think we make a pretty fine average after all. Some of these preliminaries are not available.

Blood pressure is a good thing, which is just now being stressed. By it we are often warned of impending evil. Urine examinations are necessary, and should be taken in all cases, and as far as possible, the condition of the patient should be generally known. As to the suggestion that dimensions of the pelvis should be taken, I don't see, after you find the pelvis dimensions, what you are going to do after you get that knowledge. You are going to trust to nature and let nature work out the problem, for you cannot change it. Of course, in some cases where there is deformity it might be advisable to induce premature labor.

Dr. Thompson called me up here. I don't know anything more to say. Of course, a great deal of attention has been given to this subject, and we have been brought to a higher position along these lines, and much greater precautions are taken now than formerly, and our profession is advancing in all lines, insuring easier and safer labor.

ECLAMPSIA, TOXEMIA, AND PERNICIOUS VOMITING OF PREGNANCY.

Dr. M. T. Adkins, Durham, N. C.

At the outset of this paper I wish to make grateful acknowledgment of the work of Dr. William B. MacNider, of the University of North Carolina, a part of whose work upon the inhibition of the toxicity of uranium nitrate by sodium carbonate of the kidney acutely nethropathic from uranium nitrate I am privileged to use.

Eclampsia, a rather infrequent but much dreaded complication of pregnancy is defined as an acute disease which may occur in the pregnant

parturient or puerperal woman and is characterized by clonic, tonic convulsions, during which there is loss of consciousness followed by more or less prolonged coma.

FREQUENCY.

It is almost impossible to determine this with any degree of certainty, but compiled statistics agree that an eclampsia occurs about once in every five hundred cases of labor. Generally, it is not encountered before the second half of pregnancy, becoming more frequent as term approaches. While an eclamptic seizure may come, as is said, "like a bolt from a clear sky," usually the outbreak is preceded by certain premonitory symptoms, indicative of the toxemia, and more or less common to all. Among these we may enumerate the edema more or less, marked headache and of a peculiar character, which is described by the patient as an acute boring pain, located over either eye and from which no relief is obtained by the usual therapeutic measures. Epigastric pain, nervousness, disturbed vision. The urine becomes markedly decreased in quantity; an examination usually shows marked acidity, albuminuria, acetonuria, with casts of all kinds. Delee says: "Examination of an eclamptic woman often shows marked tenderness over the kidneys, liver and stomach with greatly exaggerated reflexes, marked leucocytosis, and often complete amaurosis.

PATHOLOGY.

After Rayer and Lavier had first demonstrated the presence of albumen in the urine of women suffering from eclampsia it was rather generally conceded that the fundamental pathological lesion in this disorder was a nephritis, and the condition considered identical with uremia. But this view gradually lost ground and was finally abandoned when it was conclusively proven that comparatively few women suffering from chronic nephritis had eclampsia. Nevertheless, the autopsy findings in these cases revealed marked real changes, especially referable to the epithelium lining the secreting tubules, where is shown cloudy swelling with granular and fatty degeneration, thrombosis of the glomeruli and smaller veins and arteries are common.

The Liver. Typical changes are found here, but may vary from congestion, with granular and fatty degeneration, to necrosis, with almost complete dissolution of the liver parenchyma.

Brain. Various statements have been made concerning the pathology of the brain. Prutz noted "edema in 42 per cent, hyperemia in 35 per cent, and hemorrhage and apoplectic lesion in 13 per cent."

Within the past year I have had under personal care and observation six cases of eclampsia with convulsions, and I would like to give a brief history of three of them for comparison:

CASE I.

Mrs. H. Housewife. Age, 39. F. H. Negative.

Personal History. Multipara with four children, youngest child four years of age.

During this delivery patient suffered two convulsions but recovered uneventfully. Patient had been under observation about two months. Repeated urine examinations were negative as to any pathological lesion, such as sp. gr., ac., albumin or sugar. Acetone test was not made. The urinary findings, however, were not in keeping with the patient's general appearance, which was far from satisfactory, having a pasty, icteroanemic expression, rather general edema and fetid breath, and two days previous to delivery developed headache with the peculiar boring pain over the left eye. Eliminative treatment rather heroic was prescribed for the patient some six weeks previous to delivery, but the proper carrying out of the treatment is very much in doubt. Patient was delivered at home on the morning of December 23rd, 1915, normal delivery. Two hours later she was seized with a typical eclamptic attack and transferred at once to Watts Hospital. Admitted at 8:30 p. m. and from time of admission during the next 24 hours, had eight typical convulsions.

Clinical Picture: Temperature, practically normal. Pulse rate, 130 to 140. Blood pressure, maximum systolic, 185. Urinary findings—Cath. spec. Sp. Gr. 1028; marked acidity; albumin not marked; sugar, 0; casts, few hyaline and granular; acetone plus, and hbg. 60.

Patient was put at once upon active eliminative treatment, hot packs, heroic purgation, enteroclysis and hypodermoclycis of normal salt solution with sodium bicarbonate and lactose of each drams four to the quart of water. Patient had no more convulsions after the second day, slowly cleared up with no further complications except loss of memory of events happening six months previous to delivery.

CASE II.

Mrs. R. Housewife. Age, 48. Multipara; youngest child nine years of age. F. H., neg. Per. H., negative.

Patient in the seventh month of pregnancy seized one morning with convulsions, which as described by friends gave evidence of eclamptic attack. I saw patient in consultation with Dr. Nichols at her home seven miles distant in the country. Patient was in coma, and, after rather hurried examination, it was decided to bring the patient to the hospital without delay. Patient was delivered by manual dilatation and forceps delivery under an anesthetic. Patient had two convulsions only after delivery. Typical in every point except the severity. Active treatment as in Case No. 1 was pursued. The clinical findings were practically the same and cleared up under the treatment in about the same manner, except that the patient was in coma for about five days and in a semi-comatose condition for about a period of ten days.

CASE III.

Mrs. A. Housewife. Age, 22. Primapara in the eighth month of pregnancy. P. H., negative.

Was called to see patient on account of headache and shortness of breath. Upon entering the room, from inspection only, one was very much impressed and almost ready to diagnose a condition of broken compensation. Patient is a young woman, sitting bolstered up in bed—face edematous, puffiness of the eyes and ictero-cyanotic appearance with heavy breathing. After careful examination with the history, found the condition of cardiac embarrassment to be due to a pulmonary edema. Her temperature was 99, respiration 35, pulse 134, full and bounding.

Patient was advised but refused to go to the hospital, and was accordingly put upon eliminative treatment with therapeutic measures for the heart. For the first four or five days following, patient's condition seemed to improve, especially as relative to cardiac distress, but the general condition slow to show signs of improvement as anasarca, puffiness, fetid breath, headache, and disturbance of vision still were held out as danger signals. After much persuasion, patient consented to go to the hospital, where an eclamptic attack with convulsions made it imperative to deliver by manual dilatation and forceps. The treatment and following recovery were about the same as cases No. 1 and No. 2.

In a short summary of these cases we find the manifestations, clinical pictures of the toxemia, have a definite similarity and yielding to the same general treatment.

Now, in the work of Dr. MacNider, to which reference is made at the beginning of this paper, it seems to me this furnishes evidence of a prophylactic treatment which may be used in pregnant women suffering from the symptoms general, which have been heretofore referred. The protection of the kidney by sodium carbonate from the uranium nitrate and the autopsy findings of the kidney and liver in eclampsia agreeing almost identically with the findings in the kidney nephropathic from uranium nitrate, seems to me, gives basis for treatment in the condition with symptoms referable to eclampsia.

It, therefore, behooves every man practicing obstetrics to give most careful attention to frequent urinary examination, especially referable to the test for acetone in the urine. Its presence, however, is not always indicative of an acidosis, nor is its absence proof that an acidosis is not present, for there may be an acidosis of the tissues manifested in the blood whose presence has not been shown in the urine. The recent research work on the acid bodies in the blood, a test for which can now most easily be made somewhat after this manner. A few cc. of blood are taken from the patient, the blood allowed to settle and the serum therefrom three cc. of which is placed in a small celoidin sack previously made under the most rigid precautions. This sack is now immersed in the phe-

nolsulphothaelin as an indicator and allowed to dialyse out, and this in turn is compared with the colorimeter scheme, something after the fashion of the Dunning colorimeter, the acid contents of the blood may be definitely determined. Although not much work has been done in testing the acidity of the blood in eclamptic women may we not take a lesson from nature and presume that all eclamptic women do have a high acid content? Nature has created an unnatural appetite in pregnant women, among these may be noted the appetite for magnesia and other forms of antacids, and may we not presume that this is nature's way in neutralizing the acidity of the blood?

THE CAUSES.

No definite etiology has yet been brought forth as to the cause of eclampsia. The only thing definite we have are the various theories. Certain it is that all cases have in general certain common symptoms. The urinary findings are practically the same. The pathological lesions at autopsy bear a striking resemblance, more or less marked by the severity of the eclamptic attack. We will leave the cause indefinite, but if we have a prophylactic means of defense of certain organs definitely pathological in eclampsia may we not use it with marked effect in the prevention of this most dreaded complication of pregnancy?

DISCUSSION.

Dr. Geo. H. Ross, Durham: I am very much interested in the subject of acidosis. I believe there is a great deal in it. I have not had, however, the opportunity of testing this in a case of eclampsia, but I consider it a great step forward in its treatment. It has been my experience in seventeen years of practice in obstetrics, in general practice, to treat about twenty cases of eclampsia out of obstetrical cases numbering about 815. Some years I have not encountered a single case of eclampsia, but in others I have found as many as five or six. I consider it just as important for us to consider the prevention of eclampsia as I do our duty to make a desperate effort to prevent tuberculosis. The great majority of physicians have a habit of going on and doing their work and seeing their patients once, often not at all, before the hour of delivery, and since we know, quoting from our eminent author, as our essayist used, Dr. DeLee, of Chicago, one out of every 250 women who become pregnant dies, and judging from the registration area of the United States we may conservatively say that 20,000 women die from the immediate or remote causes of childbirth every year. Seven per cent of all the deaths of women occurring between the ages of twenty and forty

are due to puerperal infection. Six thousand women in the United States die from puerperal infection each year. Then following out the advice of our noted obstetrician, Dr. DeLee, if we were to examine the urine of pregnant women every three weeks, a great number of these cases would never go on to eclampsia and we would have a comparatively easy and safe delivery. In order to do this we have first to educate the public, to educate them up to the dangers of childbirth, to educate them as to the necessity of preparation for childbirth, and, secondly, to educate our doctors to attend to what they know to be their duty and perform these urinalyses. I last year had an experience illustrating the ignorance of the public in regard to these cases. One afternoon I met an old lady, she says: "I wish you to attend my daughter in childbirth. She is at my house; her husband is away; she has some headache. She is not feeling very well." I said: "Ask her to send me a specimen of her urine and I will examine it and see what it contains." She said, "Very well." The next morning I drove by the house and the young lady met me at the door. I let her know the reason of my visit, she politely said: "I have been confined before and I never did that for any doctor, and I do not propose to do it for you. I consider it indecent." I said: "It is very necessary in every case." She politely refused. I said: "Under these circumstances I shall not be responsible for your condition during childbirth or the six weeks following." I left the house. Some one else delivered her.

I hope the physicians of our State will, from now on, make a thorough examination of the urine of pregnant women, at least every month, and when such urinalyses warrant it, restrict the diet and give proper remedies and thereby prevent eclampsia and lower the mortality in this most awful complication of childbirth. I have never seen a woman have convulsions in labor who had been on milk diet for ten days and had taken sufficient quantity of magnesium sulphate.

Dr. J. F. Sanderford, Creedmoor: As some of the gentlemen know, I am a country practitioner. I am out seventeen miles from the Watts Hospital, haven't a laboratory and country doctors do not have the advantages of some of the city doctors, but we are not immune to some of the other things and that is being called to cases of eclampsia, and usually that is about the first notice we have. I recall two cases, primapara. I have not seen more than half a dozen cases. Both of these cases live two miles from me. I was called hurriedly in the nighttime. The fellow said: "Doctor, I wish you would come as quick as you can." The first case I got there in a few minutes. My neighboring physician was called with me immediately and for the relief of that case we used

dilatation and delivered that child as rapidly as possible. With all the treatment that we were capable of doing the woman died. Another, I was called in a very similar way and the patient was taken in the night. I was told before getting there the woman had convulsions, had eclampsia. We delivered that woman; she got well with very little trouble.

I am most often approached in this manner: "Doctor, we are expecting trouble at our house and we want you to attend the madam." I usually get into a conversation with that man, inquire as to the condition of his wife, and impress upon him as much as possible, the importance of a preparation for it. It is so important to have the woman prepared. You had better doctor beforehand. I am trying to reach my people along that line and urging them if any symptoms demand I may be called, and I insist always on a specimen of the urine, and get in touch with her as much as possible. I think that the greatest benefit to those cases is the prevention, there are methods and means of relief after the case comes on.

If I were not encroaching upon Dr. Holloway, I have in mind a case that Dr. Holloway had. He was called early one morning. He found his woman in convulsions. He called me. I had an engagement and had to leave him. I hope Dr. Holloway will relate that case. I do not know whether there is anything in process about the reporting of that case. I heartily thank Dr. Adkins for this paper, and I hope we can get more definite information that will be of great benefit, not only to read papers, but that it will be of benefit to us there. We country physicians have the picture of what we would like to do, how we would like to get ahead of them, treat them, but we are handicapped through the ignorance of the laity, but I feel sure every physician will lay stress on the preparation. It is not a sick business at all. If they are all right to begin with they are going to come out all right. The education of the laity as well as the education of the doctor will be of benefit all along. (Applause.)

Dr. E. A. Abernethy, Chapel Hill: The work done by Fischer of the University of Cincinnati tends to show that all cases of uremia are due to the presence in the blood of some acid condition. Fischer contends, and his laboratory experiments bear out the theory, that the uremic symptoms are due to an edema of the brain, which he has ascertained by injecting an acid into the blood. Blindness is due to edema of the blood. Suppression of the kidneys is due to an acute swelling and that the casts are the drawing off of this swollen tissue.

I had a case of eclampsia to which I applied the new treatment. A

patient of mine had an acid condition of the blood, acute acidosis. I gave an injection of sodium bicarbonate. Within a few hours after the injection all the uremic symptoms cleared up, notwithstanding the fact that the woman lived ten days and voided only four ounces. The woman died of an acute heart failure. Both kidneys were totally destroyed by an acute necrosis, but the thing that interested me most was the fact that after we rendered her blood alkaline by chemical tests all these symptoms cleared up. This has been going on for two years as shown by Peabody, Fischer, and others. If this is true, if called to a case of eclampsia, if we would give that woman a solution of sodium bicarbonate we might prevent these after effects.

Dr. Tom A. Williams: My excuse for saying anything about this subject is that it is a problem which affects many from conditions more injurious. The last speaker has spoken concerning the theory of Dr. Fischer. We do not all agree that the subject under discussion is accountable for various other conditions and like symptoms, but we do agree that uremia is not yet understood by all, that the chronic headache is so caused and certain other orders of life so called. To some acidosis is considered secondary and it is purely alkaline injection taking up certain conditions that interfere with the kidneys instead of being construed to giving too much demipoisons and which cause many of the early symptoms, the later symptoms being caused by acidosis.

How shall we meet this? It comes because there is a failure to deal with the extra amount of nitrogen. The woman fails to dispose of the nitrogen, renal insufficiency. In the first case, that was not the cause, there was no albumen, there was no disorder of the kidneys, the woman was anemic, there was a failure of oxidation, which caused the toxic symptoms. It is necessary to find out the nitrogen contents of the blood, better than to find out the acid degree of the blood.

Dr. P. R. Hardee, Stem: We country physicians are frequently called by a midwife several miles away to see these cases, perhaps never having seen the patient before. We find ourselves away not only from a hospital, but from another physician. If on examination we find the arteries soft and dilatable we practice manual dilitation, and if the head is low down in pelvis we apply forceps and deliver as soon as we can, generally saving both mother and child. When the head is high up and pelvis not efficient we use podalic version and deliver as rapidly as possible, generally saving two lives. In cases like the above I consider myself fortunate. But we frequently meet with a condition which has not been discussed in this paper. If on examination we find the circular fibers of the cervix in a state of tonic contraction, as unyielding as an iron ring,

it is then we are facing a dilemma. In these cases I have used veratrum viride, as was formerly called the Brooklyn method. I have used morphine hypodermically in heroic doses. I have relaxed them with chloroform, and tried divers things, but of no avail. My sad experience in these cases is they *all die*. And I believe the same results will occur in these cases in a hospital unless cesarean section is performed early. It is these particular cases that I have learned to dread more than all others in midwifery. According to the statistics given in this paper it seems that I have had a large per cent of them for in a small practice I remember to have lost three patients in this condition in the last few years.

Dr. Cyrus Thompson, Jacksonville: I do not desire to enter into a discussion of this paper. I am very much interested in the paper and in the discussions and I particular appreciate the discussion of the matter which Dr. Williams of Washington has made. Of course, I recognize it is a toxemia. I recognize there may be an acid condition and I think that soda is a first-rate thing to give. I think I will give more soda hereafter to these women. I remember one little woman who always in her pregnancy kept well and was thoroughly normal and happy; and I have the picture in my mind how she would go about the house with a box of cooking soda. She would talk to her friends, every now and then dipping her fingers into the box of soda, and laughing say it was the best thing she had ever tasted. That was nature advising a good little woman of the things that were making for her peace.

One or two other things I want to say. Some men, perhaps, hardly ever see a case of eclampsia. If I were to tell you that five per cent of the cases I have are eclamptic you would say I am exaggerating. It may be the truth, however, for the reason that the country practitioner does not do the average obstetrical work, but the midwives do the bulk of it; and the country doctors are called to deliver women of their first children and out of complications of one kind and another developed in the hands of midwives. Eclampsia is especially frequent in the hookwormy section. Moreover, women who have been infected and who have been stunted by hookworm abort more than normal women, and they are more prone to eclampsia.

My friend Hardee speaks well of our difficulties. We country practitioners do not have anybody to consult with us. We go ahead and do, and by the grace of God we do remarkably well, albeit we are frequently caught, in the classic phraseology of Mr. Watterson, "Between hell and the iron works."

Dr. M. T. Adkins: I understand that those practicing in the country do not have the advantages of a hospital. An examination of the urine is not a difficult thing. If done regularly many cases of eclampsia, of the kidney of pregnancy, and all these unfavorable conditions and symptoms might be averted. It is not a difficult thing to do. I do not think this is a reasonable excuse to hide behind. I think we should be prepared to do these things and do them. As shown by Dr. MacNider and Dr. Fischer, it seems to have been that women who are showing in pregnancy the symptoms of eclampsia, these symptoms may be ameliorated and done away with by the careful treatment that we have suggested. The acidity of the blood is only mentioned as, perhaps, a means of future help in taking care of the eclamptic woman. We do not know what causes eclampsia. We know nothing definite. We have a means given to us now with which to ameliorate these symptoms, and it seems to me it is up to us.

Dr. Arch. Cheatham, Durham: Mr. President, Dr. Hays could do this much better than myself. This is an honor I was not expecting. I do not feel that I am competent to introduce as distinguished a visitor as we have, Dr. Frances S. Bradley, of Washington City. She is engaged in the work of the welfare of children, of our children at Fayetteville. She is interested in our people. She has come down here to teach the mothers how to take care of their infants and to teach the doctors how to care for that infant. We know the most valuable asset of our State is our children.

It is a pleasure to have Dr. Bradley with us today.

Dr. Frances Sage Bradley, Washington: This is an unexpected honor. I did not know until the last moment that I would be able to attend the meeting of this association, and came over especially to meet the public health men, but feel more than recompensed by hearing the discussions of this obstetrical section.

We feel that the keystone of sound, healthy childhood is sound, healthy motherhood, and that the pregnant and puerperal woman is entitled to the best knowledge and skill available. Children are surely our most valuable asset, and we have not realized how much of their health and happiness depend upon more intelligent parenthood.

We doctors have a great way of saying that the average prospective mother does not give the doctor a chance. We call her ignorant and stubborn, but, gentlemen, we cannot feel that she deliberately goes to term knowing her danger, or that she wants to die in childbirth. And who is to teach her if not the doctor? She has no way of knowing, for

instance, the significance of the premonitory symptoms of eclampsia, or the danger and cause of infection, the value of breast feeding, etc., etc. And the doctor who fails to instruct each patient in these details is not doing his duty.

Some states are doing more and more each year towards educating, especially the rural women, though it is slow work. In Georgia we had hard work getting $5,000 from our Legislature for the wives of farmers for whom they willingly gave $25,000. And, again this year, we had to beg for a reasonable share of the Smith-Lever appropriation that farmers' wives might be taught to raise better children.

The Government, as you know, is helping farmers through its Agricultural Department, to raise better crops, and it is reasonable to believe that scientific methods applied to raising children would give equally practical results. The Department of Labor, through its Children's Bureau, is trying this experiment. We know that our maternal mortality is great; that we have in some sections of the country, an alarming infant mortality, and that other countries and some of our own large cities have markedly lowered their death rate by careful, sustained work. We know much less of our rural children than of those living in cities, though three out of every five live in rural districts. And so it seemed worth while to make an inquiry into the conditions affecting children in towns of 2,500 and less. Such a study is now being made in Cumberland County of your own State.

Many people have said, "Why Cumberland?" Simply that it seems to be a fairly typical county, neither very rich nor very poor; it is an agricultural rather than a manufacturing district; and presents no difficult or unusual racial, social or economic problems. We have met with cordial coöperation, and hope that after a few months we shall have information which will be of value both to the State and to the Government.

We are pursuing the work in the following manner. We held an exhibit in Fayetteville, the county seat, showing by means of panels, charts, models, and electrical devices, good methods of bathing, clothing and feeding young children. We also examined a few children each day, to make mothers more observing of the development of their babies. We held informal discussions on such subjects as prenatal care, obstetrical care, care of the baby, and of the older child, diseases of children (so-called) etc., etc. We gave much literature in the form of leaflets, bulletins, etc., which the bureau is glad to furnish free to any one interested in children.

After holding this exhibit for ten days for whites, we did the same for

the negroes, who need the work as much if not more. We are now taking a certain portion of it to every township in the county, mainly to popularize the study of the baby, and to have the parents realize how much better results they would achieve with the help of a doctor rather than the advice of neighbors and friends. It has been wonderful to see the interest of not only women, but men who have left their farms in the midst of the busy ploughing and planting season, and come ten, twelve, and fifteen miles to learn how to raise better babies.

As the most valuable assistant to the doctor, we hope to see visiting nurses installed in every community, or, at least, every county. At the present time she would be the most effectual educational agency, keeping the doctor and patient in touch, and eventually, perhaps, taking the place of the untrained midwife.

I greatly appreciate the honor you have shown me, or rather the work I represent, and thank you for the time you have kindly spared from an already over-full session.

THE RELATION OF THE GENERAL PRACTITIONER TO OBSTETRICS.

Dr. Ben H. Hackney, Bynum, N. C.

The close relation of the men of medicine to obstetrics has been observed since the days of Hippocrates, but it was not so deeply impressed upon the educated public until the notable discovery of the obstetrical forceps by Albucasis in 1092. No more important question can engage the attention of our profession today than the relation of the general practitioner to obstetrics. Many of these cases inevitably came first to him when under conditions most unfavorable. Without previously seeing the patient, he may be confronted by the most dangerous complications of parturition. Unaided, he must perform difficult operations under the pressure of necessity. In no branch of medicine is the general practitioner placed at such disadvantages.

General practitioners may be divided into two classes when we consider the field of obstetrics. The larger group are those who do obstetrical work to hold the medical practice of the family. A very much smaller number have natural surgical inclinations, and do this with interest and pleasure. A considerable number of practitioners of medicine, however, are beginning professional life, but have not as yet achieved success, and are dependent for a living on all cases whose

management they dare attempt. These men must do obstetrics to live, and yet have no intention or possibility of doing such work well. They simply do the work for the money, not having sympathy for the suffering parturient or knowledge enough to scientifically care for her new-born babe.

Under these circumstances, how can obstetric practice be conducted in such a manner as to do justice to the general practitioner, and how can the general practitioner do justice to his obstetric patients? The great specialty of the general practitioner should be his diagnosis. His opportunities for obtaining skill and accuracy in this branch of medicine are the best.

His success as a practitioner is dependent on his diagnostic power more than all others, for often he cannot avail himself of laboratory methods, and must depend upon his power of observation and palpation. The success or failure of the general practitioner will depend upon his ability to diagnosticate conditions which make pregnancy dangerous and parturition disastrous. A thorough knowledge of the signs and symptoms of the toxemia of pregnancy, the ability to diagnosticate contracted pelvis, disproportion between maternal and fetal parts, and abnormal presentations, should be within his grasp at any bedside. If to these he adds the antiseptic habit, he can successfully meet many of the conditions of obstetric practice. Under these conditions the conduct of normal labor becomes a matter of no special difficulty; because a man so equipped will recognize abnormality and secure in such cases the service which he himself may not be able to render.

The many hospitals scattered over the State, and the development of obstetrics as a specialty has placed before the general practitioner the conditions necessary for the management of complicated cases. After the diagnosis of abnormality has been made of either woman or fetus, such case should be referred by the general practitioner where skill can be procured for their management, and thereby run a greater chance to relieve human suffering and save human life. A physician can better send his complicated obstetric cases to a hospital than to have them do poorly in their own homes. In the case of appendicitis or ovaritis, he does his duty to the patient when he makes the diagnosis, afterwards confirmed as correct by the laparotomist. In a complicated case of parturition the same is true. No successful general practitioner can afford to do that which he cannot do well.

The general practitioner who is not yet successful, and who must take in everything that comes his way to make his living is driven to attempt the management of complicated and dangerous cases of parturition under the most adverse circumstances without aid or assistance. It

is well to remember that a medical reputation can be made among the poor or rich. It is becoming time for us to learn that it is better to lose ten or fifteen dollars by transferring a complicated obstetric case to a hospital than to hold on to the case until it terminates in the death of the fetus and prolonged illness of the mother by septic infection. Observation shows us that it will not do to keep a case of appendicitis or twisted pedicle at home under our care, so it will not pay us to act in a similar manner with a case of complicated parturition.

We have men throughout the country with a marked taste for surgery, and often for obstetrics. These men have attained ability in the domestic management of complicated labor. They practice asepsis; they have the necessary instruments and appliances, and an abundant experience and observation. These men do excellent work in spite of unfavorable surroundings, and in any but the most difficult complications of obstetric practice are competent and successful.

I realize fully the very unfavorable and unjust position in which we are placed in attempting, without sufficient assistance and surroundings, to deal with the dangerous complications of obstetrics. It is my hope and purpose not only to secure better obstetricians, but to place the general practitioner in the proper position among his brethren and before the public.

PITUITARY EXTRACT, MORPHINE AND HYOSCIN IN LABOR.

Eric A. Abernethy, B.S., M.D., Chapel Hill, N. C.

The purpose of this paper is to present a practical and safe method of producing painless labor—a "twilight sleep" which can be given successfully in any private home by any competent practitioner without danger to the child or to the mother.

When Gauss announced the Freiburg method of producing "twilight sleep" the medical world immediately divided itself into two extreme classes: one large group which condemned the whole system as "meddlesome midwifery," and denied it a place in obstetrical practice; and another much smaller group which tried out the method and found it impractical for private practice.

In the meantime, the subject has been popularized through the lay press, and there is a growing demand for an adjustment—and we are not fair to ourselves or to our patients. It has been well said that we

"read history, not with our eyes, but with our prejudices," and this is strikingly true of the medical profession. We interpret our experiences through the glasses of prejudice. I heard one of the State's brightest medical men tell his patient that "twilight sleep" was liable to leave a permanent effect on both mother and child. Did he deliberately stultify himself? No. He simply did not know.

What is "twilight sleep?" Morphine and hyoscin—that's all. In Europe scopolamine is used in place of hyoscin. Morphine and hyoscin are being given by all American surgeons many times daily. The only effect either can have must be immediate, because there is no after effect unless one kills one's patient. Morphine depresses both spinal and cord centers; so does hyoscin and its allied drugs, and if given in sufficient amounts will not only deaden the sensation of pain, and produce loss of memory, but will inhibit the action of all nerve centers, stopping labor. This occurs if enough of the drugs are given to relieve the pains of labor. Pituitary extract stimulates the cord centers controlling uterine contractions without any effect on the brain centers. While this stimulation is not so active as in the absence of morphine and hyoscin it will furnish sufficient stimulation to complete delivery in most cases. The real objection to "twilight sleep" is that it prolongs the second stage of labor, endangering the mother and giving the blue baby. This objection does not hold if one controls the pains with pituitary extract. Instead of prolonging the labor, it can be materially shortened because the hyoscin causes a rapid dilatation of the entire birth canal—a "melting away" of all resistance.

This paper is not for those men who deny the right to produce painless labor. They belong to the fourteenth century.

I have given morphine, hyoscin and pituitary extract to over a hundred patients of all ages and social conditions and have seen no bad results. The method is this:

As soon as the patient becomes distressingly uncomfortable I give an initial dose of morphine, grain $\frac{1}{4}$ or grain $\frac{1}{6}$; and hyoscin hydrobromide, grain $\frac{1}{200}$. It is not well to be hasty. Labor should be established. In from half an hour to an hour and a half the patient has become decidedly more comfortable and usually gets sleepy, but still has pains, which do not seem to greatly disturb her. The picture is much more pleasing to both the attending physician and the neighbors. Just here in my experience occurs something wonderful and very desirable. The rigid os which has been delaying the labor has suddenly relaxed, and the tense vagina has lost its rigidity. Both of these conditions are directly due to the hyoscin and they materially facilitate the delivery instead of retarding it, if pituitary extract is given. At this point the

pains gradually lose their intensity and get farther apart. A half cc. of pituitary extract is now given. This usually causes the pains to come closer together and become harder. If the pains disturb the mother to any extent another $\frac{1}{200}$ of hyoscin is given. Later another half cc. of the pituitary extract. Never more than $\frac{1}{50}$ of hyoscin (rarely over $\frac{1}{100}$), and not more than 2 cc. of the pituitary extract are administered. By this time the patient is usually delivered—there is no prolonged second stage, no tear, no shock, no hemorrhage, and after the delivery of the placenta, which is greatly aided by the pituitary extract, the uterus contracts firmly, the patient goes to sleep to awake several hours later feeling much refreshed, and with a hazy recollection of the delivery, although she has answered questions at the time.

The following cases are cited as illustrative of the results:

Pauline, Negress, age 14, short, stout. Primipara. Labor began at 6 A. M. At 3 P. M., dilation of the os was about one-half inch in diameter, rigid, and vaginal outlet markedly rigid; morphine, grain ¼; hyoscin, grain 1-100, administered hypodermically. At 6 P. M., three hours later, during which time patient slept (waking during pains, which were not severe), os and soft parts were widely dilated, the head presenting at the vaginal outlet. Labor had about ceased. Pituitary extract, ½ cc., was administered, the pains recurring in five minutes, apparently becoming severe. A second dose of 1-200 grain of hyoscin was given. The pains again lost their intensity. In twenty minutes a second ½ cc. of pituitary extract was given, and twenty minutes later a third ½ cc., labor being completed four hours after the initial dose. A baby weighing 9 pounds was delivered without a tear, the mother being asleep within two minutes after delivery. She awoke four hours later without recollection of any events after 3 o'clock, the time of the initial hypodermic. Normal convalescence.

Mrs. H., 37, white. Primipara. Saw patient after labor had been in progress 14 hours. Pains five minutes apart and severe. Dilatation of os about ¼ inch, vaginal muscles very rigid. Morphine, grain ¼; hyoscin, grain 1-100, hypodermicaly, at 4 A. M. At 11 A. M., after having slept three hours, os and vaginal outlet widely dilated and relaxed. Pains slow and far apart. Pituitary extract, ½ cc. was given, pains increasing immediately. Hyoscin, grain 1-200, followed by two doses of pituitary extract twenty minutes apart. Delivery painless at 1 P. M. Small, median tear. Complete loss of memory, but talkative delirium for six hours after delivery. Normal convalescence without fatigue or shock.

Mrs. N., 37, seventh child. Labor had been in progress four hours. Rigid os about 1 inch in diameter. Pains severe, five minutes apart. Much physical effort and straining. Morphine, grain 1-6; hyoscin, grain 1-100, followed by pituitary extract half an hour later as pains apparently ceased. Immediate delivery, slight pain, but refreshing sleep of several hours. No shock, no fatigue. Normal convalescence with hazy memory of delivery.

Mrs. C., 24, primpara. Labor of 16 hours. Complete loss of memory, but difficult to control during pains as she could not be made to understand.

A total of morphia, grain ¼; hyoscin, grain 1-75 and pituitrin 2 cc., were given. Small median tear. 13 pound baby. No shock. Rapid and normal convalescence.

It has been my fortune to try this method on several patients whom I have delivered three or more times. In these patients the results have been more than satisfactory. Allow me to cite two cases:

Mrs. E., white, 30. Three children. First, forceps under ether—bad tear due to the rigidity, tardy convalescence. Second child two years ago. Spontaneous delivery—under chloroform. Much straining and bearing down, protrusion of hemorrhoids, bad tear owing to rigidly, and long painful recovery without infection, hemorrhoids, giving great pain. Third child September 3d. Labor of four hours. Morphine, grain ¼; hyoscin, grain 1-100; pituitrin, half cc. Within one hour after giving hyoscin the cervix and soft parts relaxed and the delivery was painless,—no tear, no shock, no straining, and hence no piles; a sleep of six hours and a happy recovery.

Mrs. R., 27, white and delicate. Three children. First child delivered with forceps under general anesthesia after 14 hours hard labor; small tear. Tardy convalescence of two months without infection. Second baby two years ago. Spontaneous delivery under chloroform. Much bearing down and physical exhaustion, and long trying convalescence. Third baby in July. Labor of two hours, morphine, grain ¼; hyoscin, grain 1-100; and pituitrin 1 cc. Some pain, but a hazy memory of the labor; no shock, long refreshing sleep; up the ninth day.

In both of the cases cited above the pituitrin was not administered until the pains had practically ceased.

In two cases—second babies—labor was not completed as rapidly as was desired and low forceps were satisfactorily used without any other anesthetic, both patients having no recollection of delivery. No shock, no fatigue; normal convalescence.

In the series, one post-partum hemorrhage occurred on the eighth day in a frail woman who died the 28th day of acute nephritis, and two "blue babies," which recovered, were the only accidents. The post-partum hemorrhage was attributed to the formation of a clot by gradual oozing from a chronic pelvic inflammatory condition. The "blue baby" cases were not delayed ones.

The method has given especially pleasing results in old multiparae with fibrous changes in the uterus. In these cases there is always a rigidity of the os, which is baffling, and hyoscin relieves most of them.

Three cases of delirium were observed, but in these three there was loss of memory, no especial pain, and no bad results. In a number of the cases, loss of memory was not complete because the pituitary extract was administered before the hyoscin had taken effect. Ether was given as an adjunct in these cases. The after effects were pleasant.

The advantages of this method over ether are marked. Much is being said about the bad after-effects of ether; and ether is slow, and requires an assistant. The anesthesia is never satisfactory and the ether itself gives shock. As against chloroform—well, the time has come when one gives chloroform at one's own risk. It is never safe.

The rapid dilatation of the birth canal, the absence of shock, the shorter labor, the absence of physical exhaustion, the loss of horror, the absence of pain, add materially to the advantages of this method.

The disadvantages are: Some women do not respond readily to morphine and hyoscin, and sometimes the pituitary extract fails. And every complication, from gall-stones to ingrowing toe-nails, is charged to the drugs.

In closing, it is hardly necessary to add that one must know that there is no mechanical obstruction to prevent the delivery. And it must be remembered that one is dealing with a series of very powerful drugs (and this is true of all drugs having any physiological action), all of which, if used without care, are capable of producing serious harm and even death.

DISCUSSION.

Dr. R. L. Payne, of Virginia: I do not believe I want to discuss that paper, but I would like to see R. L. Payne, of North Carolina, so I could identify him. Last year the reports of my discussions were nearly all sent to him and I never got them back.

Dr. M. E. Robinson, Goldsboro: What effect do hyoscin and morphine have on the mother? Some time ago I used it and the child came still-born. It did not breathe for a half hour. I attributed it to hyoscin. We brought it to life again after an hour. Then breathing was restored and seemingly all right, but an hour afterwards I was called and found child red all over and breathing stopped, artificial respiration applied again and child was restored, then went on to health.

HEMI-EMBRYO POSTERIOR.

Dr. Lewis Webb, Chapel Hill, N. C.

On the morning of March 22, 1915, I was called to deliver Mrs. C. T., colored. She is thirty-five years of age and this is seventh confinement. I had been called in to see her two weeks prior to this, she was at that time suffering from edema of the lower extremities, some pain in the

back and abdomen, she stated to me that she had been in bad health all during her pregnancy. I delivered her of a normal girl child weighing eight pounds, following the placenta, which was attached by a small cord to another mass that I could palpate in the abdomen and I supposed to be a twin. It came in a separate sac and upon opening the sac I found the monster which consisted of two lower extremities and a pelvis. The mother had a severe post-partrum hemorrhage. The recovery from labor was uneventful. The patient is the mother of seven normal children. Father is forty-nine years of age, in good health and denies venereal infection. No family history of monsters or twins from either father or mother. I could find no report of any such cases in this country, and I thought a report of this case might be of interest to members of this society. Up to the present time, however, there have been collected in Europe reports of one hundred and twenty-five such cases. H. V. Wilson says he knows of no such instances in mammals. There are instances of such monsters occurring in frogs and salamanders. They are called by the zoölogists hemiembryos posterior and I have adapted this term to the human.

HISTOLOGY.

The specimen consists of two lower extremities and a pelvis. These are approximately of normal size of the corresponding parts of an average full term foetus. The thighs are semi-flexed, as also are the legs. The feet are inverted. On the right foot are five stubby toes. On the left foot are four stubby toes, the one corresponding to the great toe being double, as though it and the second toe had fused. The whole specimen is edematous. The skin apparently normal. There is a slight cleft between the buttocks but there is no sign of an anus. A small globular mass about seven millimeters in diameter represents the rudimentary genitals. The umbilical cord is attached about one inch in front of the genitals, and immediately above the pubis. The hips, knees and ankles permit slight movement, but the tense skin prevents anything like the normal range.

An incision (U-shaped) beginning on the front of the thigh a little above the knee was carried over the top of the pelvis to a corresponding point on the opposite side. Through this a dissection of the thigh and pelvis was made. The thighs seem to consist merely of edematous fibrous tissue and a small amount of fat, the latter being restricted to a sheath about one centimeter thick immediately about the femur. The pelvis shows no evidence of the existence of any of the normal organs, but appears to be filled with same edematous connective tissue that constitutes the bulk of the thighs. The vessels from the umbilical cord

separate just beneath the skin and pass outward to the thighs. In this dissection the sacrum and the whole ring of the pelvis are exposed and appear to be normally formed. There are no vertebræ above the sacrum. Pieces of tissue were taken from the thighs and from pelvis and umbilical cord for microscopical examination. The examination of the pelvic contents and the tissues from the thighs show nothing but fat and a fairly well-developed mucous connective tissue. For about four inches above from its attachment to the body the cord is covered with normal skin, beyond this point it is covered with the remnant of the allantiis. The contents of the cord are normal. As it was desired to preserve the specimen without undue mutilation no miscroscopical examination of the rudimentary genitals was made.

CAUSES.

I will take up the causes from two standpoints: first, from the standpoint of monsters in general; and, second, from the standpoint of the monster I am reporting.

First. Causes of Monsters in General. From the light of recent investigations on the causation of monstrosities, it is quite certain that external agencies have much to do with their formation, I mean by external, causes that are external to the ovum itself. Heredity has undoubted influence, as we see monsters in several generations in succession.

Internal or germinal causes, *i. e.,* causes within the ovum itself are not so well understood. The sperm or male element has some influence in the production of monsters as shown by the work of Bardeen, who saw deformed ova result from the fertilization by sperm which had been exposed to the X-Ray.

External causes: injury to the abdomen or uterus, not violent enough to destroy foetus or ovum, disease of the chorion, the amnion, abnormal implantation of the ovum as in tubal pregnancy, arrest of development as a result of chemical, physical and thermic action, changes in the ovum during the blastula stage. Lithium, sodium, potassium and magnesium have a selective action on the cells of the morula stage and produce monsters, some affecting the nervous system and others the heart. In fifty per cent of their cases Stockard and Lewis produced clycopean monsters from the eggs of the minnow by subjecting them to a solution of magnesium sulphate. It has been suggested by Hertwig that certain chemical poisons circulating in the blood of the mother may affect the embryo and cause monsters. In the old days people used to think that the mental state of the mother caused monsters, but of course no intelligent person believes that now. Good observers claim, however, that

shock, worry, deprivation, etc., may produce in the endometrium nutritional and vascular disturbances which may affect the growth of the embryo. The role of syphilis in the production of monsters cannot be too strongly emphasized. I have within the last two years seen in my practice one exencephalus monster and one craniorhaaschischlieis monster which were delivered from syphilitic mothers. Mall believes that emniotic adhesions that were formerly held responsible for many single monsters are usually secondary rather than primary.

CAUSES FROM THE STANDPOINT OF THE MONSTER REPORTED.

Of course all general causes are to be considered also. Rux, about 1880 pricking frog-eggs in the blastomere stage, killing first cells after the development of egg had started. In some of his experiments he killed the cells which normally formed the head end of the embryo, result posterior abnormality developed. Thus we first had hemi-embryo posterior experimentally produced. Rather likely this embryo began to develop and that the head end subsequently degenerated, in the early stage, blastocyst for instance. The posterior growth without the head isn't surprising because human embryos certainly resemble lower forms in their phsiological behavior as well as in their anatomy, and plenty of lower forms will live without the head end and even regenerate; others do not, but live for a time. It seems, then, that from some cause the head end of this embryo degenerated at an early stage and died, but that the posterior end grew and developed.

I am deeply indebted to Dr. J. B. Bullitt for the histology report, and Dr. H. V. Wilson for suggestions as to cause.

MATERIA MEDICA AND THERAPEUTICS

EMETINE.

Dr. E. G. Moore, Elm City.

Emetine was known to exist as an alkaloid of ipecac nearly a century ago, and the first description we have of it was given by Pelletier in 1817, who advocated it in the treatment of dysentery and chronic diarrhoea. Thus it will be observed that it is not a new drug, nor the patent infant of a new discovery. It is neither the worthless nostrum of an advertising propaganda, nor the specific cure of all of physical disorders or mental delinquency. It is, however, the active principle, the spirit and the essence of that faithful and honored drug of our ancestors, known to them and bequeathed to us as plain old ipecac.

Veritable as the Balm of Gilead, it soothed and comforted them in times of doubt and trouble, and wrought many miracles of faith that added to the renown and glory of the then much respected medicine man.

It was "*sine qua non*" for a fit of blues, or a fit of indigestion, and a remedy "par excellence" when vitiated humoral secretions played its active and important role in the causation of disturbed functions, and consequent unhappy forebodings.

But every decade, and sometimes every annual cycle of years, records notable changes of methods and customs, not only in the pursuit of industrial life and the diplomacy of trade, but equally so in the system of educational teachings, and the evolution of scientific investigation. In the light of this experience the ipecac of yesterday has become the emetine of today with a fuller and more exact comprehension of its application and value.

It is but frank that I should say, and it is but honest that I should not claim any originality either in the discovery or the application of this alkaloidal drug which at present is attracting the attention of so many clinicians, having been warmly praised by some, and roundly abused by others. My object will be accomplished to present such facts as I may be able to obtain before our Medical Society and trust to a liberal discussion, based upon observation and experience, by its individual members, out of which great good, let us hope, will come both to the honor of the drug and the credit of the profession.

Ipecac for a number of years has been advocated and used with varying experiences in the treatment of dysentery. Endorsed by some and condemned by others, this drug ran its doubtful course through a long period of years, scoring success in some instances and proving worthless in others. Aside from the uncertainty of its curative effect, it met with much disfavor on account of the great nausea it produced, and the irritation which frequently followed its use.

Walsh, in an article published in 1891, entitled "What is the rational treatment of Acute Dysentery," said that after an extended use of the drug he could not recommend it above other drugs, and that in his hands it had not proven to be any better than other drugs not even supposed to have any selective action in the treatment of this disease. This only coincided with the experience of many others who gave it hopefully, only to be disappointed in the results obtained. Occasionally, however, such good results did follow its administration in certain cases that it continued to find its advocates and supporters, and, therefore, remained a vexed question in medical experience. It is a matter of observation that no discrimination was made as to the nature or type of dysentery so treated, except that it was the acute form.

It was in 1910 that Vedder, an American officer stationed in the Philippines, where dysentery found a congenial climate, began a series of experiments and investigation to determine if ipecac had any decided action against dysentery bacilli, or amebas, and if such action was present, to what constituent of ipecac was it due?

This was the dawn of a new thought, and the birth of a new idea. The results of these experiments were highly suggestive and demonstrated the fact that ipecac possessed no specific bactericidal effect against the bacillus of dysentery, but was a powerful amœbicide inhibiting the growth of amœba, and that emetine in a dilution of 1 to 10,000, and later in a still weaker dilution of 1 to 100,000, destroyed the amœba. From these experiments the conclusion was reached that the amœbicidal action of a given preparation of ipecac was due to the emetine it contained, and that its potency was proportioned in exact ratio to its percentage. In a later publication by Vedder in 1912 these experiments were reaffirmed, and it was also pointed out that the greater part of the emetic action of ipecac was not due to emetine but rather to another component element known as cephaelin. These facts formulated the idea that if emetine was an amœbicide, and without being an active emetic, it should prove an ideal remedy in the treatment of amœbic dysentery. This process of reasoning was well founded, since the dream of hope came true.

In 1912, Rodgers, attracted by the experiments and impressed by the

statements of Vedder, was the first to utilize in a practical way the application of the remedy in a scientific manner. Finding that a very dilute solution of emetine in the mucous stools of amebic dysenteric patients produced physical changes in them, as seen under the microscope, and that stronger solutions appeared to kill them, he decided to use the drug hypodermically in cases of severe amœbic colitis, and his results were so encouraging, and withal so successful, that he published a series of cases so treated which attracted such widespread attention that physicians throughout America and the countries of Europe have adopted his method of treatment, and the reports of their experiences largely confirm the great value of emetine as a specific amœbicidal agent.

Emetine Hydrochloride occurs as a white crystalline powder, freely soluble in alcohol and water. It is usually prescribed in the form of ampules, or hypodermic tablets. Its dose ranges from ⅓ to 1 grain daily. That it is a specific amœbicide no longer admits of doubt, for it has met the unqualified endorsement of the profession in this particular field of therapy.

Not content, however, to rest its honors with this distinction, enthusiastic advocates are claiming pleasing and beneficial results from its use in a number of other conditions, but which, at the present time, has not fully met a hearty endorsement.

Pyorrhoea, or Riggs' Disease, which has ever been the opprobium of the dental profession is now being treated with emetine, and while it has not proven curative in all cases, yet such favorable results have been obtained from its use that they are encouraged to continue the experiments with a larger faith and a greater hope.

Experiments with its use in typhoid fever need to be mentioned only to call attention to the fact that work along this line has been initiated, but the reports at the present time are too meagre to attempt a statement of any value.

As a hemostatic agent, however, with especial reference to pulmonary hemorrhage, it has received the sanction of high authority, and the medical profession awaits with keen interest the confirmation of further reports.

Wood says that the alkaloids of ipecac have a peculiar predilection for the lungs, and that the hypodermic injection of emetine in cases of hemorrhage from the lungs has often been effective and decidedly prompt in action.

Flandin, who was greatly impressed by the disappearance of blood from the stools in cases of amœbic dysentery treated by the hypodermic injection of emetine, considered the possibility of its value in the treatment of hemoptysis. He determined to try the drug, and reports most

gratifying results. In eight cases of his own, and twelve cases reported by other physicians, so treated by the hypodermic injection of emetine hydrocloride, he says the hemorrhage was promptly controlled, and succeeded after other measures had failed.

Personally I have had no experience with the drug in this condition, but more than likely many of you have, and I feel confident you will be glad to furnish such experience and such evidence as you may possess.

DISCUSSION.

Dr. G. T. Sikes, Grissom: I have been very much interested in Dr. Moore's paper and want to say simply one or two words. I have had some experience with the drug in the treatment of dysentery. I am not so appreciative of it as to prefer it to some other things that I had used in the treatment of dysentery, though the result has been satisfactory in all the cases in which I have given it a thorough test.

There is one place that I have had some experience in the use of this drug and that is in the treatment of pneumonia. If called upon today to surrender all of the drugs I know of in the treatment of pneumonia save opium and ipecac I would hold to ipecac, second to no other drug I am acquainted with except opium. For thirty years and more I have been using this drug, and I have always received satisfaction in the use of it in the treatment of pneumonia. I have also had a little experience with it in the use of it in the treatment of pyorrhea. The dentists claim that it is a panacea in the treatment of that disease. My experience using it as a dentifrice has been satisfactory also, although I would not pass on it in that particular, but I do feel that I am entitled to be somewhat of a judge in the value of the drug in the treatment of pneumonia.

I wish to ask Dr. Moore if he has ever had any suffering from hypodermic injections of the drug.

Dr. E. G. Moore, Elm City: No.

Dr. Sikes: I have always used it in the treatment of disease internally, both for dysentery and pneumonia.

Dr. P. R. Hardee, Stem: Until hearing Dr. Moore's paper I had given Rodgers, the English surgeon, entire credit for this important discovery. I am glad to know that an American conceived the idea which I believe to be the greatest recent accession to our therapeutic armamentaria. Prior to the advent of emetine I treated these cases of chronic dysentery with salol-coated ipecac pills, generally with satisfactory results. Once in a while a patient would be troubled with a return of the disease. I have not had this to occur under the emetine treatment.

In reply to Dr. Sikes' question as to the physiological effects of emetine given hypodermically, I have failed to see that it has any physiological effect save on the dysenteric process. A favorable mode of administering it is to give two one-half grain doses one day and one dose the next day which usually cures these cases of amoebic infection in a few days.

Dr. Geo. H. Ross, Durham: It has fallen to my lot to treat quite a number of cases of amœbic dysentery in this country. Prior to the use of emetine treatment I used quinine irrigations. My patients lingered for some weeks with very slight improvement. Recently I have given them nothing except emetine hypodermically. I give one-half grain daily for three days, then every second day, for three days following, at which time the amoeba would disappear from the stools and the patients were cured. I consider it worthy of any man's attention and employment. Really, there is no bad effect whatever from its use hypodermically, no sloughing in my experience with the drug, and I advise every man with a case of dysentery with mucus and blood, if he has no microscope so that he can have the feces examined before the chilling, to use the emetine treatment. It is costly but it will certainly pay him. I sterilize my needle by boiling it and use alcohol on the arm.

Dr. H. M. S. Cason, Edenton: I think we all agree that emetine is a specific in amebic dysentery and I will not discuss it, but Dr. Moore's paper recalls some experience I have had with emetine. I have used emetine in two cases of pulmonary hemorrhage and the result was very pleasing to me. In one case I was called over phone to a patient living 10 miles from me and gave instruction what to do until I arrived. I found patient coughing violently and expectorating blood freely with each paroxysm. I gave one ampule (1 cc.) emetine and in ten to fifteen minutes the hemorrhage was diminished, but still not controlled, so I repeated the dose and in 15 minutes the hemorrhage was entirely controlled. The other case was similar to this one, so I will not report it. On another occasion I was called to see an old lady who had uterine cancer who was having quite a copious hemorrhage and much alarmed at her condition. I gave her 1 cc. emetine and waited twenty minutes; hemorrhage somewhat controlled; repeated the dose, and in fifteen minutes the hemorrhage was entirely controlled. I reported my visit and treatment to her family physician. I was called during his absence.

In a case of typhoid fever, child, aged 7, duration of fever three weeks, the gums, due to poor oral hygiene, had been bleeding for three days and patient was much prostrated. I advised the family physician to

give ½ gr. emetine which was given, and the oozing was controlled in a few minutes.

Some doctor asked about the ill effects. The only ill effects I have seen is it will make a sore arm for a few days. I have had a great many patients with sore arm due to administration of emetine and I know my technique was perfect. In only one case I had a very severe abscess, the only abscess due to hypodermic medication in 17 years practice. I have given over a hundred doses of emetine.

Dr. J. A. Hodges, Richmond, Va.: At Dr. Moore's request, I will simply mention the results of some experiences that I have had with emetine which may be of benefit to some other investigator along this line.

Though I have failed in the use of emetine in a few cases for the disease named by him, namely, amœbic dysentery, yet recently profiting by experience and by the experience of some other observers, I have found that frequently we do not push this remedy to its physiological effects, and since I have used it in some rebellious cases that have been verified by proper examination, using it to the point of intoxication to a temporary paresis, the result of neuritis, I have in the last four very serious cases obtained satisfactory results. I am mentioning this in order that some of you may have the advantage of my experience in those cases in which you have not obtained as brilliant results as you might have been led to expect from the experience of other observers. I do believe that it is a most valuable remedy, as Dr. Moore has so well said, and I think that probably some of these cases in which you may have failed in the past, may have been due to the fact that you have not used the drug to its fullest extent. I am aware that you should not carry the use of this remedy to such an extent as mentioned unless you have the patient absolutely under your constant observation. As soon, however, as you have carried the patient to that extent, you notice a very material improvement, and then it is your duty to consider all of the phases in the case and lessen the dosage of the medicine accordingly. Every case is a case in itself, and there will be no ulterior result from the physiological application of the remedy except excessive weakness, temporary loss of the use of the arms or legs, and in the course of from seven to twelve days the patient recovers and soon is entirely well again, not only of the temporary paresis, but also of the intoxication which caused the patient to come to you in the first place. In other words, the primary disease is relieved.

Dr. Cyrus Thompson, Jacksonville: I have had no experience in the use of emetine, but I have experience in the use of ipecac. Of

course, the use of emetine in place of ipecac is just a matter of latter day refinement. I was glad to hear my friend, Dr. Sikes, speak of the value of ipecac as a drug. All the old practitioners liked ipecac. The French essayist Montaigne suffered with kidney colic and he said he bore cheerfully the pain for the blessed ease that came always after the attack, and that he endured the pain patiently because of the immunity that renal colic gave him from other troubles; for at the conclusion of the paroxysm he vomited, and thereby disgorged himself of all other peccant humors. So even the ghastly amusement of vomiting is not without its uses after all.

I owe my own life to ipecac. Twenty years ago I had an attack of dysentery and I came nigh unto death. My friend Nicholson, at my request, because I was educated in New Orleans, gave me thirty grains of ipecac and in four hours twenty grains, and four-hourly doses for eight doses in all. One we know now would have been perhaps sufficient. He first benumbed my stomach with forty drops of laudanum to prevent vomiting. In four hours I had come ashore and I am here today because of the ipecac I took. You know it was a rough dose to take in that way, a more than sea-sickness; but I abode in the ship.

I recall here the words of some playful poet:

"When walking in a shady grove with my darling Juliana,
For lozenges I gave her ipecacuanha;
Her gastric muscles 'gan to play,
Like craw-fish ran their action;
Her breakfast soon was thrust away,
As by some stronger faction."

We come to use of emetine. The only objection to it has been the sore arms mentioned by Dr. Cason. You can get rid of that and at the same time of the over-qualmish conditions about which I have spoken from experience by the use of alcresta ipecac. It does not dissolve until it gets into the intestines and does all the work of emetine and ipecac except it is not so rapid, possibly, as emetine given hypodermically would be; then, too, it is of easy administration to children.

Dr. Edwin G. Moore, Elm City: The last word has not been said. I am greatly appreciative to the gentlemen of the profession who have discussed the subject so intelligently and so wisely.

PITUITARY EXTRACT.

K. P. B. Bonner, M.D., Morehead City, N. C.

Pituitary extract is an aqueous solution prepared from the infundibular portion, or posterior lobe of the pituitary body of the brain. The source of supply is from animals freshly slaughtered. This extract is entirely free from color and proteid matter. Its activity is determined by physiologic tests—both upon the blood pressure and uterine muscles. The extract is marketed by the pharmaceutical firms under various trade names, but all are practically identical in action.

DOSE.

The dose is from eight to sixty minims "per oram" with possibly thirty minims as a limit by hypodermic.

ADMINISTRATION.

While the extract is readily absorbable from the alimentary canal, more prompt and certain action can be obtained by subcutaneous injection. If necessary to repeat the dose, great caution should be observed in order that too violent action may not occur.

PHYSIOLOGICAL ACTION.

It is a circulatory stimulant and markedly raises blood pressure. It is, also, a stimulant to involuntary muscle fibres, particularly those of the intestines and genito-urinary tract. In fact, pituitary extract seems to have a selective action upon the muscular tissue of the uterus.

CONTRAINDICATIONS.

Nephritis, on account of the marked rise in blood pressure, myocarditis and arteriosclerosis for the same reason. In obstetrical work, pituitary extract is contraindicated in cases of contracted pelves or where any mechanical obstruction exists, in threatened rupture of the uterus and in primiparous cases. I have yet to see the first case of primipara benefited from the administration of the extract. In the case of a potent agent as pituitary extract certainly is, harm can only result if no benefit is obtained. This statement is based upon repeated trials of the remedy in these cases.

THERAPEUTICS.

Pituitary extract is indicated in endometritis, metritis, uterine hemorrhage from various causes, including post-partum hemorrhage. It

has a mild diuretic action and is indicated for this purpose particularly after labor and abdominal operations in which we have coexistent a relaxed condition of the bladder walls. In intestinal atony with an accumulation of gas and feces, prompt relief follows the administration of fifteen minims by hypodermic.

I have purposely reserved until the last the chief use of pituitary extract and which makes it one of the most valuable pharmaceutical remedies that the profession possesses today—its use in the practice of obstetrics. It was the one essential necessary to idealize the practice of obstetrics and make the physician of greatest service to his patient and to be most helpful—for that is only what service is. For the woman in travail, this remedy is the greatest discovery since the introduction of antiseptics and asepsis. We now have at our command the four means necessary to perfect the management of labor. First is the forceps in cases of dystocia. Second is antiseptics and asepsis to prevent infection. Third is anesthetics to relieve the pangs of labor. Fourth is pituitary extract to terminate the labor that is unnecessarily long, tedious and punishing to the mother and where the uterine contractions have practically ceased for no apparent valid reason.

The evolution of the science of medicine is no better illustrated than in the above four agents used in the practice of obstetrics. First, the profession recognized the dire need of an appliance that would insure the delivery of the mother in those cases where she could not relieve herself and the forceps came into being. Next, after forceps were perfected, medical science became aroused to the fact that when the mother was delivered her danger had only begun, due to the dread puerperal infection, then came antiseptics and asepsis. With these first two agencies in the field, the preservation of the life of the mother and child was assured. What was the more natural step to be taken next than that of casting about for means of making the terrible ordeal of labor more bearable to the mother and relieve her sufferings at this time? Who of you can name a more grateful patient or one who is more appreciative of each pain relieved than that of the woman undergoing the pangs of bringing her offspring into the world? Could any such gratitude and appreciation come except as a result of great suffering? Who of us would not do all in our power to minimize the sufferings of a woman at such a time? The last two means were the ones designed to cover this very need. Anesthetics to relieve the agony, and, incidentially, to be a very valuable agent to relax the perineal muscles; pituitary extract to hasten labor and counteract any tendency to uterine inertia which might result from the use of anesthetics or other causes. Anesthetics, also, control any over violent uterine contractions caused by the pituitary

extract that might result in rupture of the uterus. Undoubtedly this is an ideal combination for the relief of this dread ordeal and are designed to go hand in hand. Who of you have not repeatedly heard at the bedside of the woman in labor and suffering from well marked uterine inertia: "Doctor, please do something. I am so tired and worn out that I feel that I can never deliver myself"? Does not such an appeal touch you? The last two remedies are the solution of this problem, and, if used, the need of forceps becomes rare.

A study of my obstetrical records reveals some startling facts that should convince even the most skeptical. Prior to the use of pituitary extract in the management of labor the average time required in attendance on the mother before the birth of the child was four hours. Well sprinkled in among my cases was many cases of uterine inertia that I was forced to sit by and see drag slowly along to its termination with an utter helplessness on my part to interfere. The inertia in all of these cases was not enough to justify the use of forceps. Finally a case of breech presentation nearly resulted in the death of the baby. This experience resulted in the trial of pituitary extract of which I had heard frequent praise, but had never used. The results obtained far exceeded my expectations. The comparison is most striking. In a series of forty-three multiparous cases since October 29, 1914, in which pituitary extract was administered, delivery was affected in an average time of twenty-two minutes. The shortest time recorded was four minutes and the longest two hours and two minutes. The tardy action of the latter was undoubtedly due to a stale or inert preparation of the gland as age has this effect on it. Based upon observation, it is best to defer the administration of the product until the os uteri is partially dilated or dilatable. The intelligent use of this remedy is productive of great good and will spare the mother many pains and much time, and, incidentally, the doctor many anxious moments.

THE IMPORTANCE OF EMPLOYING COUGH TO ELICIT LATENT RALES IN PULMONARY TUBERCULOSIS.

S. W. Thompson, Jr., M.D., Sanatorium, N. C.

No one physical diagnostic sign in early pulmonary tuberculosis is of equal value with the rale. In fact, the rale is so important that as a rule more importance should be attached to its presence than all the other signs combined. It can be elicited by anyone familiar with a

stethoscope by using the proper procedure. It reaches its greatest efficiency only after cough is employed, as I shall attempt to show.

The following statistics were obtained from a study of 1,638 chest examinations of 498 patients at the North Carolina Sanatorium for the Treatment of Tuberculosis. The 498 cases were distributed as follows: 81 incipient cases, 225 moderately advanced cases, and 192 far advanced cases. The 81 incipient cases had a total of 261 chest examinations. In 39 of these examinations no rales could be elicited after deep breathing or at any time during the respiratory cycle, even when cough was employed. Of the remaining 222 examinations, rales were elicited in 74, or 33⅓ per cent, after deep breathing and cough. Rales were elicited after cough *only* in 148, or 66⅔ per cent.

The 225 moderately advanced cases had a total of 830 examinations, in three of which no rales could be elicited after deep breathing or cough. Of the remaining 827 examinations, rales were elicited in 643, or 80 per cent, after deep breathing and cough. Rales were elicited after cough *only* in 184, or 20 per cent.

The 192 far advanced cases had a total of 547 examinations. Rales were elicited in 509, or 93 per cent, after deep breathing and cough. After cough *only,* in 38, or 7 per cent.

Even this does not show the full value of employing cough to bring out the "latent rale." Because frequently when rales could be elicited after deep breathing in only a limited area of one lobe, employing cough would bring out rales over the entire area of two or three lobes; and in almost every instance the number and area of distribution of rales was increased. In no instance could constant rales be elicited over any area after deep breathing that could not also be elicited after cough. The rales produced after cough were more distinct and clear. Especially was this true in the 81 incipient cases. It is readily seen that the percentage of examinations showing rales only after cough was highest in the incipient cases, next in the moderately advanced cases, and last, or lowest, in the far advanced cases.

Right here I wish to state that in taking the histories of these cases the two statements by the patient that startled me most were that they did not know whether or not they were bottle or breast fed infants, and that their physician employed cough in making a chest examination. This prompted me to select this subject.

METHOD OF PROCEDURE.

All clothing from waist up of patient should be removed. In case the chest being examined has a heavy growth of coarse hair, vaseline or some oil may be applied with advantage. After going through the usual

procedures, namely, inspection, palpation, percussion, and the usual auscultatory procedures, the patient should then be instructed to exhale, cough, and inhale. The expiration should be a natural one, very little if any force being employed. The cough should be slight and single and not intense or explosive in character. The inspiration should be deep and forced, but not exaggerated. The real value of cough depends on the time of insertion during the respiratory cycle. The time at which the patient usually attempts cough is towards the completion of inspiration; this is wrong. The proper time to insert the cough is at the end of a natural or slightly forced expiration. Rales are heard best towards the completion of inspiration.

One difficulty encountered in the procedure is the patient will often attempt to take a short, jerky inspiration after expiration before coughing; this should be avoided. This can frequently be overcome if the examiner will go through the procedure and have the patient follow every phase. Cough of course should not be employed in case of recent hemorrhage, acute abdominal conditions, etc.

I accept the commonly accepted theory that the rale is produced when the collapsed walls of the alveoli and small bronchioles in the atelectatic areas are being separated. Therefore the greatest number of rales would of course occur at the completion of inspiration, when the volume of air in the lungs is greatest.

An excellent article on this subject by Bray appeared in the March 11, 1916, issue of the *Journal of the American Medical Association,* and I heartily commend it to your careful study.

PATENT AND PROPRIETARY MEDICINES AND OTHER HABIT FORMING DRUGS. A VARIETY OF COMMENTS.

Dr. S. M. Crowell, Charlotte, N. C.

Some time ago when requested to write a paper on this subject it, at first, appealed to me more as a joke than an appropriate subject for a scientific paper. However, after more mature consideration, the conclusion was reached that there was much material in the subject for consideration, the entire profession being more or less affected and unusually interested right at this time.

In conversation with one physician he said: "Give patent medicines hell and rub it in." Perhaps a literal interpretation of this advice *exe-*

cutei would be to the extreme. Another thoughtful and most careful medical friend, upon being interviewed, in a similar manner replied: "It will not do to *indiscriminately* condemn all patent and proprietary remedies, for in some there is much good." And, perhaps, the latter is more rational and conservative advice.

Perhaps a free and honest expression of his opinion upon similar preparations is responsible for the great law suit now going on between the editor of the *Journal of the American Medical Association* and the Chattanooga Medicine Company, in which case Dr. Simmons and the Association are being sued for libel and damages on account of reputed derogatory remarks published in said *Journal* in reference to "Wine of Cardui," which chemists say is only an impotent solution of alcohol, residue, ash, etc. Yet this concoction has been heralded the country o'er as a panacea for *all* womb troubles, practically, by the above manufacturers.

Peruna at one time had an enviable reputation, too. However, its sales seem to be on the decline right now. The appearance of "Tanlac" upon the market recently might account for its depreciation, for we find the same class of people now using and *"testifying"* for this alcoholic preparation, and according to their affidavits, are being cured by it *"after all the doctors had failed."* They appear to take it for every ill from toe itch on through the uterine, stomach and the various nervous and mental perversion.

It has been said that last year there was on the market 27,000 different proprietary nostrums, and some author says that the sum of $181,000,000 was spent for patent medicines during 1914 in the United States and Canada.

As evidence that our profession is now seriously considering this subject, a few weeks ago a committee from the American Medical Association visited President Wilson and told him that patent medicines constituted an evil of *national* scope, and as prima facie evidence that the manufacturers of these preparations are thinking along this same line, we are told by the *Bulletin of Pharmacy* that the patent medicine interests have a protective organization known as the Proprietary Association (this very name being deceptive) and that it had, *also*, sent a committee to Washington City to interview Col. Osborne, Commissioner of Internal Revenue, in the interest of their business, and to plead for certain rulings in their favor.

We are told by the *American Medical Association Journal* of last week that, "a drug not known to have some definite, safe action should not be used, and that the only one who has the knowledge of the *action* of a drug on the human being in health and in disease should prescribe

that drug for a patient. This writer further says: "A self-evident corollary is that a mixture of drugs can not be prepared or kept in stock to fit a patient who may need treatment at some time in the future * * *. Proprietary drugstore, hospital, dispensary and office mixtures are unscientific, and at times may even be dangerous. These statements are timely and challenge contradiction.

All sufferers, both real and imaginary, accept as true practically all that they read in newspaper and other advertising media. Patent medicine men being cognizant of this fact, select the very best secular and especially *religious* newspapers possible to utilize, and advertise their "wares" very extensively. The laity, of course, most anxious to get well, fall victim to the often exaggerated "advertisement," may be in form of a personal letter, and fall victim to the preparation.

Illustrative of this fact, I can do no better than quote from the *North Carolina Bulletin of Health* of last February, where it quotes a physician who practices at one of the large clinics in New York City. He says: "It is discouraging to see what faith many people still have in lying labels on patent medicines. Every day we see patients who come to be relieved of a cough and weakness which has lasted increasingly for months. These poor fellows don't do a thing for themselves all these months except swallow patent medicines whose labels promised miracles. * * *." He tells the following as a true story and typical of these happenings every day: "One poor devil came for treatment recently. He had a cold for about six months, and yet during all that time, did nothing for himself but eat pounds of cough drops and drink quarts of patent medicine. He was in the last stage of tuberculosis, and was so weak that it was not safe to let him walk a few steps to the ambulance, and yet he had been to work as a cook and dish-washer only the night before. Think of the time this man lost while depending on his cough drops and patent medicines! It cost him all of his chance for recovery from tuberculosis. Sensible and scientific treatment, at the very beginning would have given him a good chance to get entirely well. Perhaps nearly every doctor here can recall one or more cases similar to the above in his experience. This case may well be applied to practically all the curable and malignant diseases, many of them that we have all seen, having gone through an experience similar to this New York doctor's. It is alarming to think of the men and women who die annually of cancer, neglected till too late, by using patent medicines and salves of every description. It is difficult to read the various newspapers and magazines, and not see in prominent space, too, one or more advertisements guaranteeing a "cure" for cancer and other malignant diseases. But the most pathetic and perhaps wicked circumstance to our

mind, is the poor little helpless child dying of diphtheria or other infectious disease, whose parents have used some highly recommended home or patent remedy till too late for a doctor to save the child's life.

The Harrison Antinarcotic Law, of course, has very materially remedied this evil effect of patent and proprietary medicines, but has not overcome it by any means. Some one has stated that out of the millions of drug addictees in the United States, many are made such while infants by being drugged and doped by various concoctions labeled "harmless," such, for instance as Mrs. Winslow's Soothing Syrup; Dr. Miller's Anodyne for babies; Dr. Moffett's Teething Powder; Dr. Bull's Cough Syrup, and scores and scores of such habit-forming agents.

With these facts in hand, after years of careful investigation, Dr. L. F. Kebler, Chief of the Bureau of Chemistry at Washington, D. C., estimated in his bulletin report, April, 1910, that there are in the United States anywhere from one to four million inebriates addicted to habit-forming drugs. Can we wonder that our race is growing weaker, if perchance a little wiser? Dr. Kebler further says: "Notwithstanding the fact that legislation, federal, state and territorial, adverse to indiscriminate sale and use of habit-forming drugs has been enacted, and most physicians are using greater circumspection than formerly in prescribing such injurious preparations, the amount of opium, per capita, in the United States has been doubled during the past 40 years," it being the base of a great bulk of those patent and proprietary preparations.

Under the head of soothing syrups, baby syrups, colic cures, children's anodynes, teething concoctions, etc., perhaps many *physicians* have long suspected that such contained harmful agents. However, as they have been labeled "harmless," *mothers* are not aware of their harmful effect * * * use the "dopes" without consulting the family physician, and as a consequence, many, many, "poor innocent children ruined for life, and, in fact, many deaths annually occur from such prescribing." One death, a mother in child-bed, in a town near this city, having died recently from an over-dose of some patent medicine, according to a report to our *Bulletin of Health*. Dr. Kebler further says that he has discovered a great many dangerous patent and proprietary preparations and that they are sent indiscriminately into any home, although some of them contain sufficient poison to kill a dozen men * * * and that some of the promoters themselves have *little* knowledge of the dangerous character of the mixtures they are handling. For example, it was discovered that one preparation, handled by a grocerman, who had neither medical nor pharmaceutical knowledge, was distributing to anyone asking for it. The above case could be many times repeated, however, we must pass on to other phases closely allied.

Prohibition in its various forms, and the Harrison Law are doing very much toward bringing about temperance in so far as the excessive consumption of alcohol and opium are concerned. However, in a mild, insidious, yet most positive manner, the so-called "soft" drinks are doing much to impair the health of our race. From no less authority than that of Dr. Osler comes the statement that, "these soft drinks are doing more to undermine the health of the race than that of whiskey," according to the advice of an able young member of our profession, whose statements and ability we respect and regard as competent. This is especially true in the South, where prohibition is in operation. In many places, thousands of dollars are being spent to make attractive discarded bar room buildings as a place of dispensation of the various brands of these drinks, and practically all of our drug stores are liberally patronized by men, women, girls, and even the little children are consuming the damnable concoction at the expense of mind and body. Of course the ever wide-awake "dago" has "caught on," and is serving all the brands with his "shined" fruit, and the wonder is that the alien "Chinee" is not handling them as a "side line" to his "washee" business. Dr. Kebler says of this evil: "A number of so-called soft drinks on the market contain both of the habit-forming agents, cocaine and caffein. It is not uncommon to find persons *addicted* to the use of these medicated soft drinks. It is also a well known fact that many factory employees, stenographers, typewriters, and others subject to mental or nervous strain, spend a large part of their earnings for drinks of this character."

We all can be witness to the above every day, as well as the parties of young ladies and society women in drug stores and refreshment booths calling for their accustomed "dopes," and that night, perhaps, some of them calling on their family physician for something for insomnia, headache, constipation, and other accompanying ills most surely to follow.

To remedy these and many other evils, only in the power and knowledge of the medical man, it has been suggested that there be created by Congress a place for the doctor of medicine in the President's Cabinet, and perhaps the day is not far distant when this office will be created with a Gorgas, Mayo, or perchance Rankin to fill it.

DISCUSSION.

Dr. M. E. Robinson, Goldsboro: I think there is nothing more damnable than whiskey. He speaks of soft drinks taking issue with whiskey. There is nothing in God's world that I know of equal to whiskey. It takes the life out of a man and makes him a brute. I do not think a

soft drink, unless a man makes a slop tub of his stomach, does him any harm. There is no comparison between soft drinks and whiskey, and I think it would be hard for a medical society to come out and say it is doing as much harm as whiskey. I think rather we had better fight whiskey. I cannot say that I see where soft drinks hurt, unless one makes a slop tub of one's stomach.

Dr. S. M. Crowell, Charlotte: In closing I wish to say that the gentleman very evidently must have misunderstood me. I said nothing whatever in favor of whiskey or its use in any manner. I am as much opposed to its use as he or any other man, and have spent the best years of my life in fighting it with all my might. But what I did say was to condemn the excessive use of some of the so-called "soft" drinks, and stated that some one had said that Dr. Osler had said that these drinks were doing more to impair the health of the people than that of whiskey, and that this was especially so in the South, where these drinks are used so excessively, and whiskey in such a marked decrease.

Yes, I sometimes take a "soft" drink myself, but try to take it in moderation, and reserve the right to select the variety.

Dr. M. E. Robinson, Goldsboro: I think Dr. Osler made some big mistakes. He has made as big mistakes as some of us little country fellows. We recognize him as authority, but I have seen his mistakes.

TREATMENT OF TETANUS, WITH REPORT OF A CASE.

Dr. Wm. S. Jordan, Fayetteville, N. C.

The purpose of this paper is to deal with the treatment of this disease. The character of tetanus will not be considered further than to say that we must recognize two types of the condition dependent upon the virulence of the organism with the consequent production of toxins in proportion to the virulence, and the susceptibility of the patient to the action of the toxins. The latter factor in the case of tetanus is practically constant, once the infection is established, so that two types, based chiefly on the virulence of the infection, are apparent, namely: Acute tetanus and chronic tetanus. The type of acute tetanus is any case that has an incubation period of seven days or less, and the chronic type any case with an incubation period of more than seven days. This sub-division is further justified by the fact that there is a difference in

the mortality in the two types, of thirty per cent or more. The gravity of any case is in direct proportion to the rapidity of development. By the use of anti-tetantic serum in connection with the older symptomatic methods of treatment, the mortality has been reduced twenty per cent. I believe that the reason the reduction of mortality has not been greater is beause all the details of treatment in the management of cases have not been given the consideration they demand, and that in those cases where antitoxin has been used the doses have not been uniformly large enough, and due regard given to the method of administration.

The treatment of tetanus may be classified under three heads: (1) specific, (2) supportive, and (3) symptomatic.

Before speaking of these three things in detail, it might be well to include the statement that in the case of every wound where the question of possible surgical cleanliness is in doubt, it is the moral duty of every physician to give a prophylactic dose of antitetanic serum, and if refused the privilege he should declare his freedom from responsibility as to the consequences.

SPECIFIC TREATMENT.

There is only one known specific to tetanus, and that is antitetanic serum. Just as soon as the diagnosis is made this specific should be administered, and the first dose should be the largest one given during the course of treatment. Sad to relate, this dose is too often larger than can be provided in many of the local markets. The reason for this first and large dose is this: We are taught that it is a comparatively easy matter to neutralize the toxin that is circulating in the blood and lymph, and if he had only this part of the toxin to combat, possibly smaller doses might suffice, but the difficulty lies in the fact that the toxin which concerns us most is that which has already actually combined permanently with the cells of the central nervous system and the spinal cord. The purpose of the large dose is to so overneutralize the free toxin in the blood and lymph that the antitoxin remains in excess and under pressure when by the law of diffusion through animal membranes, osmosis, it will be easier for the antitoxin to unite with the toxin which is combined with the cell-substance in the brain and spinal cord tissues.

DOSAGE.

Granting the possibility that some devised method might determine the actual degree of toxicity, the sacrifice of time would not permit the delay in any given case, and for practical purposes it is not necessary to know this. The patient should receive at the earliest possible moment, for an adult, from twenty-five to forty thousand units. After this ini-

tial dose, from five to fifteen thousand units should be given at intervals of twenty-four to forty-eight hours, according to the apparent needs of the patient. There is no danger of giving too much, and besides the antitoxin, the normal salt solution that the patient receives with each dose is beneficial. In this disease there is a rapid dissolution of the hemoglobin in the red blood cells, resulting in a grave anemia, and the action of the salt solution is the same in effect as its administration after great loss of blood by hemorrhage.

TECHNIC OF ADMINISTRATION.

Of all the suggested methods, the most practical and the best, to my mind, is the intravenous. The subcutaneous is not satisfactory because of the large quantity of the antitoxin and the slowness of absorption, the stated time being seventy-two hours before it is all taken up. The same is true in less degree when it is given intramuscularly. As for the intraspinous method, it would be most difficult to give in this manner such a great quantity as would be necessary, salt solution included, with the added difficulty of maintaining the proper temperature of the solution for the length of time that would be required, and the attendant dangers of the method except with most elaborate facilities. The intravenous method is safe, simple, and for best results, all factors considered, the most quickly effectual. The syringes containing the antitoxin are first washed in antiseptic solution, and then placed in heated sterile water until they are about body temperature. Under all aseptic precautions the infusion is started with a small quantity of salt solution in a suitable vein, and then the antitoxin is emptied into the infusion apparatus. Following this more normal salt is added until the total quantity of salt solution taken up amounts to 200 to 500 cc. This treatment overfills the circulation, but a protective reaction set in and the patient perspires profusely, a factor in itself conducive to elimination of the toxins.

SUPPORTIVE TREATMENT.

Under this head it is important to maintain to the greatest possible extent the patient's nutrition, realizing that the muscles are all in a state of toxic contraction, and the effect is the same as if the patient were doing he most arduous manual labor, so far as the development of fatigue is concerned. Until the patient is able to swallow he should be fed with milk and liquids by gavage. On account of the exacerbation of the tetanic spasms produced by passing the stomach, tube full quantities of a feeding should be given each time and gavage practiced only about twice a day. This should be supplemented by rectal feedings, four

ounces every three or four hours. On account of the very rapid waste of energy in this strenuous disease, sufficient feeding is just as important to conserve the vital forces as any other feature of the treatment, and it is on this point that I desire to place special emphasis. If stimulation is required, it should be given in the form of whiskey, or brandy per rectum. As soon as the patient can swallow he may be permitted to drink through a rubber tube.

SYMPTOMATIC TREATMENT.

The patient should receive full doses of morphine and atropine hypodermically, and chloral and bromide, either by gavage or per rectum. These drugs are used entirely to keep in abeyance the tetanic spasms and to give the patient rest. It is essential to bear in mind one important point. When the patient begins to get better the chloral should be diminished in amount in proportion to the degree of improvement, lest by excessive action of the drug the patient becomes poisoned.

A wedge between the teeth, to keep the muscles of the jaw stretched as much as the condition of tetanus will permit, affords the patient a great amount of comfort. The mouth should be cleansed frequently with a mild antiseptic solution. Attention to the bowels will require giving a soap-suds enema once a day.

As for the wound, the source of the infection, it should be opened wide, curetted or excised, drained freely and dressed by approved surgical methods. Further than this it does not enter into the treatment as a factor for special consideration.

REPORT OF A CASE.

P. L., male, age 16, saw mill operative. Received a cut inflicted by a rapidly revolving circular saw across the calf of the leg, severing a large part of the belly of the gastrocnemius muscle. The wound was very ragged, but received very careful antiseptic treatment, the shreds trimmed out, the muscle repaired with catgut, and the wound closed with interrupted sutures. However, three days later it was noted that the wound was infected. All the stitches broke down and it was treated by the open method with proper antiseptic technic. Nine days after injury the patient complained of a stiffness of the jaw. The possibility of tetanus was apparent, and 5,000 units of antitoxin were given subcutaneously. The next morning, twelve hours later, tetanus was unmistakable and 18,000 units of antitoxin were given intravenously. Within forty-eight hours of the first symptoms the patient was rigid all over and the jaw locked. He was having convulsions about every half hour and more often if disturbed at all. He had no chill to start with, and temperature did not rise above 102 F., pulse were 90 to 100 and respirations were 18 to 20. In addition to antitoxin the patient received full quantities of liquid nourishment by gavage and per rectum, three ounces of normal salt being given with each rectal feeding.

Chloral, gr. xv and sod. bromide, gr. xxx were given every three hours with each rectal feeding. Morphine, gr. ¼, and atropine, gr. 1-150, were given every three hours hypodermically. Any increase in the toxicity of the patient, noted by increase in the severity of the symptoms and elevation of the temperature above 100 F., warranted the assumption that repeated doses of antitoxin were indicated. Consequently on the fifth day the patient received his third dose of antitoxin (the second dose administered intravenously), and twelve thousand units were given. In like manner on the seventh day eight thousand units were given. With each intravenous dose the patient received from 200 to 500 cc. of normal salt solution. Altogether forty-three thousand units of antitoxin were given, all but 5,000 units being given intravenously. Invariably after each intravenous treatment the patient for several hours perspired profusely, although he was receiving atropine, gr. 1-150 every three hours. The mouth was kept clean with an antiseptic wash, and an enema given once a day to relieve the bowels. Medication was decreased gradually as the patient improved. Abatement of symptoms was slow, but after the first eight days certain, and just thirty days after the first appearance of symptoms the patient was discharged as well. In the meantime the wound had entirely healed.

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GYNECOLOGY

THE EFFECT OF OPERATIONS FOR UTERINE DISPLACEMENTS ON SUBSEQUENT LABORS.

Dr. Roscoe D. McMillan, Red Springs, N. C.

No more interesting subject, nor one more heavily fraught with promise of far-reaching and most beneficial results, has attracted the attention of gynecologists during recent years than the operative treatment and cure of displacements of the uterus. When we stop to consider the free mobility of this organ by nature of its construction and in consequence of its visceral relations, it has a considerable range of normal mobility, and its possible mobility is greater still. It moves up and down with every breath the woman draws. It changes its position with her position, descending in the erect ascending in the supine posture. The fundus is elevated by the distended bladder, depressed by exerting any intra-abdominal pressure as in the act of defecation, etc. Indeed, the normal position of the uterus cannot be indicated by definite lines or specific limitations, but a wide departure from the text book normal position constitutes a pathological malposition or displacement.

It is not my purpose in a brief presentation of this subject to discuss the various displacements and their treatment. On account of the marked prevalence of retrodisplacements, constituting about one-fifth of all gynecological cases, and its relation to the child-bearing woman, I am desirous of laying on this phase the most stress.

Of the many operations in constant use, a large number are failures. No one operation already devised or to be devised will cure all sorts and conditions of cases.

As individual as is the patient, so individual may be the patient's displacement, and this element of individuality must be seen clearly and weighed accurately in the operator's diagnosis, and the following points should be passed on before determining what shall be the operative procedure in a given case.

First. What is the age of the patient? If the woman is in child-bearing period no operative procedure should be undertaken that will cause any interference with a subsequent pregnancy. I have personally witnessed in the clinic of my distinguished friend and colleague, Dr. Kloman, of Baltimore, several mal-presentations such as shoulder and

trunk, due to the extreme anteflexion of the uterus occurring in women who had previously had their uterus fixed in an attempt to do a ventro-suspension. These patients were hopelessly lost to deliver themselves, or to be delivered with forceps and were relieved only by prompt cesarean section and saved from possible further trouble by a resection of the tubes to prevent future pregnancies. In one instance a rent had already occurred in the uterus following a prolonged attempt on the woman's part to deliver herself.

Second. What is the condition of the pelvic floor? It is absolutely essential that a corrected floor of firm muscular type must accompany any operative procedure for retrodisplacements when there is a relaxed pelvic floor existing.

Third. What is the position of the cervix, and can it be replaced in the hollow of the sacrum?

To my mind, of the many operations thus far devised, the Baldy-Webster most nearly meets the above stated requirements. This operation is accomplished, according to Baldy, by three forces:

First. Intra-abdominal pressure on the fundal wall.

Second. The encircling band formed by the round ligaments.

Third. The downward pull of the round ligaments on the uterine cornua.

In this operation the uterus is upheld by the encircling loop of the round ligaments which are sutured to the posterior surface of the body in a line just below the level of the insertion of the utero-ovarian ligaments. The ovaries are also elevated by this operation in the following manner: By the general elevation and anteversion of the uterus and by the rolling forward of the top of the broad ligament, owing to the pull backward of the round ligament as it passes through the hole in the broad ligament.

The technique for operation is as follows: The abdomen is opened in the middle line. The uterus is lifted from its displaced position to a normal position. The appendages are examined and adhesions freed. The utero-sacral ligaments are first shortened by taking a tuck in them behind the uterus. The round ligaments are then picked up and examined to see if they have sufficient strength to perform their function. If so, a piece of tape carried in a blunt needle is placed under each of them about one and one-half inches from their insertion into the uterus. A Kelly clamp is then placed on the free ends of these tapes. A bloodless point is now selected in the broad ligament just under the tube, about one inch from the uterus. A hysterectomy forcep is then pushed from behind forward through this space. It is then opened and the two ends of the tape from the corresponding sides are placed in it and the round

ligament is pulled back through the opening in the broad ligament. The same is done on the opposite side, and then the round ligaments are sutured with number "O" catgut to a point on the posterior wall of the uterus and about a half inch below the insertion of the tubes.

Now as to the failures and the cause of so many failures following round ligament operations:

First. A plain neglect of knowing the anatomy of the female pelvis.

Second. What might be called a passion for originality in which the enthusiastic operator permits himself to be obsessed with his own ideas to the forgetfulness of the work done by the path-finders in this line of work. To be specific and illustrate the reasons for frequent failures, I mention some of the complications and sequelæ in some of the well-known methods:

Coffey's plication of the round ligaments have been followed by exudates in the utero-vesical space, painful uteri with limited motion, painful coitus. The chief reason, however, is that it brings the entire uterus forward in the pelvis, and subsequently the cervix slides up under the symphysis followed by a backward displacement of the fundus.

The Gilliam and Montgomery-Gilliam operations have the defect of leaving artificial pillars extending from the uterus to the abdominal wall, the cervix is not in the hollow of the sacrum and the traction on the uterus is not in the normal line of the round ligaments.

Alexander's operation was the first attempted on the round ligaments, being done as far back as 1840. Various modifications have been devised from time to time, all to no avail. The first disadvantage of this operation lies in requiring two incisions, and often considerable dissection in situations difficult to protect from infection, when infection occurred. This not only added danger to the patient at once, but endangered the future comfort of the patient from the occurrence of hernia through weakened wall resistance. It is more or less of a blind procedure and consequently applicable only to the cases in which the absence of adhesions is evident. The traction of a uterus drawn forward by shortened round ligaments and backward by adhesions to the rectum, makes the condition of the woman a great deal worse than she was before operation.

The chief reasons for not getting good results from the Baldy-Webster operation are unless the ligaments are fastened low enough on the posterior wall, *i. e.*, about half an inch below the insertion of the tubes, there is a tendency for the ovaries to be carried upward and to be thrown over forward with the rolling forward of the broad ligaments, or if too low the ligaments serve as a loop over which the body may bend, thus making a retroflexion instead of a retroversion. Be on your guard

not to cause any tortion of the ligaments as this causes swelling from obstruction to the circulation of the ligaments. Varicosities of the veins of the pampiniform plexus are common to all dsplacements, especially so with descensus, but if the operation is carefully done, especially in passing the round ligaments through the opening made for them in the broad ligament, this complication will not cause much trouble. Occasionally a thrombophlebitis occurs and may extend from the pelvis to the femoral or saphenous veins.

There is no question that the best results obtained from this operation occur in the type with a small uterus and two well developed round ligaments. It has been a very noticeable fact that in cases of retrodisplacements during the child-bearing period the round ligaments are unusually well developed in a majority of the cases.

In 437 Baldy-Webster operations performed by Polak and his associates, twenty women have had children subsequent to the operation, twenty-two have aborted making in all forty-two pregnancies from which to draw conclusions. No complication of labor has been recorded, only one delivery has required forceps.

It should not be forgotten that the round ligaments are nonstriated muscle fibers and part of the wall of the uterus itself, which has been projected forward to the spine of the pubes. The round ligaments undergo hypertrophy during pregnancy and involution following pregnancy. It has not been found that repeated pregnancies have influenced the ultimate results in the cases done according to the Baldy-Webster method.

POST-PUERPERAL STERILITY: ITS CAUSE AND SURGICAL TREATMENT.

Dr. H. S. Lott, Winston-Salem, N. C.

Gynecology means—not ablation or distortion of organs, but conservation of the procreative functions of womanhood.

The clinical picture of the "group" of cases indicated by the title of this paper is familiar to you all. That it is distinctive and real is true and also that it offers possibilities for surgical relief—I believe can be established. It is most often a sequel to the confinement of primiparæ but may occur later in the child-bearing period. As a sequence to mild post-partum infection it resembles, in pathology and in results, sequelæ to the exanthemata in early girlhood; the difference being that on the

one hand we have a hope of clearance from the marital relation, and on the other this hope has been dispelled.

The patient comes with a chief complaint of "pain"; and pain, mark you, is the distress signal of pathologic foci. We get the history of a "labor" several years ago with no distinctive feature save a "chill" within the limits of the first week of the puerperium. This chill, followed by fever for several hours causes no alarm, and the convalescence in other respects seems perfectly normal. The mother, after the usual "rest in bed," which is never long enough, will resume her care of the household, and, as a rule, will nurse her babe throughout the allotted time. The menses reappear, but the rhythm is broken, the interval being either too short or too long, with some discomfort amounting to pain *during* the flow which is either too scant or too free; while a moderate leucorrhœa just after the menstrual epoch is the rule. In a general way the health is fairly good, and yet not up to normal. The appetite is fitful and the food is not digested well, thus bringing the usual sequence of constipation and loss of weight. The years go by with no conceptions, while blended with the pain and the clinical picture here portrayed, and in a subconscious way, perhaps, is a wonder at such break in the cycle of normal marital relations.

Now, let us consider the pain, with its *three distinctive points,* and their meaning, and that we may get a clear conception of conditions we will picture just what happened at the time of confinement. The "chill" was the culmination of a mild infection, for nothing else would cause an *explosion* of this type; the invasion, though just a break, perhaps, in the mucous membrane of the outlet, or, as likely, at the site of placental attachment, traversed the fallopian tubes and started a conflagration of intra-pelvic cellular structures which spent itself and stopped just short of pus possibilities. But not before singeing their delicate fimbriæ and sealing them to the surface of each ovary. This function is abolished for the fimbriæ save when in spasmodic clasp of the ovary, should "float free like a fish's fins in water," and two pain points established by distorted anatomic conditions.

Being a neighboring structure, cushioned in similar cellular tissues, and vitalized by communicating circulatory fluids, the appendix is caught in the conflagration just as the branches of a neighboring tree when a house is burned. Like the fimbriæ of the tubes this "little assassin" with its meso-attachment are devitalized just to the point of permanent injury, leaving, perhaps, fixation at its base to the head of the cæcum with lessening of its lumen quite sufficient to hold any harbored enterolith or abolish any possible function with which it may be

accredited; and giving us the third pain point of so much value in the classic group of physical signs distinctive of this pathology.

Therefore, our physical examination gives us tenderness per vaginam—to the right and to the left of the uterus—while this organ swings free and in a normal position. From above, deep pressure just above the left ovary gives pain, though it is not always marked, while on the right we find the usual blend confirming the feel from below of a tender ovary, and also the *reflex epigastric discomfort ever coincident with involvement of the appendix.*

In addition to the three pain points, the importance of which I wish to emphasize, the patient will give a history of pelvic discomfort when walking, most marked when coming down a stairway, or stepping off the curbing, and her graphic account of a "pulling sensation" when lying down, especially when lying on the left side, the fixation seeming to be in the right lower quadrant, and of such severity as to have prevented her lying on the side for years, and also to prevent sleep; is not only a constant feature in the clinical history just portrayed, but confirmatory of the existing pathology.

Years ago, Lawson Tait and Joseph Price developed the *late pathology* of tubes and ovaries, and established the justice of their removal. Today our chief advances lie in early recognition and in preventive measures. This condition, the result of infection, will not clear up, time only emphasizing the agglutination of structures and perpetuating the abolition of function. Therefore, it only remains to suggest a method promising to relieve symptoms and restore function. This promise comes, I believe, through surgery; and is made possible only by the perfect toilet and precise technique of today.

After the usual preparation for an abdominal section the approach may be made through either a free right rectus, or a median incision; preferably median, unless the patient be a thin subject with a shallow pelvis. The appendix is sought and removed with the freeing of any bands that may favor normal rotation of the cæcum. At this juncture the head should be lowered, as free exposure facilitates both investigation and handling of the appendages. Then with the uterine fundus as a starting point, and tracking down to the right and to the left of the pelvis, each fallopian tube is palpated to its limit; and each, in turn, with its adjacent ovary brought into view. The fimbriæ, if welded to the surface of the ovary is gently freed, entire and with very gentle manipulation normal conditions restored to this delicate fringed extremity. If pain *during menstruation* has been marked, suggesting obstruction to normal currents through the fallopian tube—each fringed extremity may be carefully surrounded by gauze, the ostium abdominal

exposed, and a filiform bougie passed through the lumen of the tube to the limit of the uterine cavity, thus freeing any possible occlusion and establishing its potency. Finally, after careful restoration of the appendages to their "home" in the pelvis, the patient is lowered, and a half pint of normal saline solution introduced into the cavity just before closure of the abdominal incision. This last step is important, the solution assuring that the fimbriæ float free for just a little while, until the edges are slightly seared and do not become again agglutinated to the surface of the ovary.

Results in the few cases in which this procedure has been used (and I have not had occasion to "sound" the fallopian tubes) have been gratifying. The pain points have disappeared and the patients walk and lie on either side with comfort. The appetite has returned, and digestion is good, with the resultant gain in weight. While of prime importance is the fact,—that menstruation has resumed its normal cycle without discomfort.

SYPHILIS IN A WOMAN WITH REPORT OF AN UNUSUAL CASE.

J. L. Nicholson, M.D., Washington, N. C.

It is not the purpose of this paper to take up syphilis in all of its phases in women, but not long ago I had referred to me for treatment a case of syphilis in a woman in whom the clinical manifestations were so obscure that I am constrained to report this case to you.

We have all had women to present themselves to us in whom the ordinary syphilitic picture, of miscarriages, enlarged glands, night pains, etc., was very apparent and, indeed, I believe that in most cases of syphilis some symptom of syphilis will be sufficiently apparent to direct our attention into the right channel, but there are other times, as it has occurred in my short practice, when the symptoms seem to point to some particular organ as being the seat of disease when this organ is perfectly healthy. We are frequently led into believing that some intra-abdominal condition is present when, as a matter of fact the gastric or other disturbances are symptoms of an old syphilitic infection. We are at times even led to advise patients that a laparotomy is indicated for the relief of some supposed gall-bladder or duodenal or gastric condition.

So I wish to urge the necessity of a careful and thorough painstaking diagnosis in these cases that present great obscurity; seeming to

point to the gall bladder or to the stomach or some of the other abdominal viscera, so that we will not be subjected to the embarrassment of opening an abdominal cavity expecting to find something abnormal and having to close it again, no wiser for the operation.

This especial case that I have in mind is a lady who was referred to me recently and who gave the following history: She had had no disease in her life up to two years prior to her consultation with me. At this time she weighed 160 pounds, then without any warning, a pain of great intensity, rather burning in character, just below the right scapula began. This pain continued for several hours, gradually subsided, leaving her with a slight nausea but no vomiting. She began to lose weight. The pain did not return again for about two months, then returned in the same place, terminating with nausea and slight vomiting. The pain returned then at regular intervals, the intervals growing shorter, the pain getting more severe until the attacks occurred about once each week. At this time a pain over the internal malleolus of the right leg developed in conjunction with the pain below the right scapula. These pains at the time that she consulted me were continuous for from twelve to twenty-four hours, terminating with a severe nausea and vomiting, lasting from two to three days, the pains ceasing at the onset of the vomiting and the vomiting ceasing as abruptly as the pain began. During these two years she has lost 60 pounds in weight and at the time of the consultation she weighed 100 pounds. All of the symptoms in this case pointed to some gall-bladder disturbance, as at the time of her severe vomiting she would become slightly jaundiced and tender over the region of the gall-bladder. I found the right kidney movable and was inclined to think that the pain in her back was due to the misplacement of this organ, but catherization of the ureter with injection of the kidney produced altogether a different kind of pain, so I was able to exclude the kidney. X-ray pictures of the gall-bladder showed no stones, an examination of the pelvis was negative. The patient had given birth to four children, had had no miscarriages and had passed the age of child bearing.

Syphilis, for some reason, had not occurred to me until I had gone more thoroughly into her family history. I found upon inquiry, that her husband was dead and that he had been a hard drinker and had died from cirrhosis of the liver. Then I began to suspect that possibly this liver condition was due to a syphilitic infection of the husband and that he had infected the wife, and she had shown no symptoms, or very transient ones of the disease until she had gone this far in life.

A blood examination showed a negative Wasserman, but upon withdrawing some spinal fluid and submitting it to a pathalogist I got a re-

port of a positive reaction. I knew that I had to deal with a case of spinal syphilis, but until I had gotten this report I felt sure that I had some intra-abdominal condition to deal with and that a laparotomy was indicated.

I have concluded therefore that the only way to escape an unnecessary operation that will tell us nothing, is to always exclude syphilis in these apparent stomach and gall-bladder conditions before going into the abdominal cavity to find the trouble.

The patient is now rapidly improving.

PLACENTA PREVIA AND TREATMENT BY CÆSAREAN SECTION WITH REPORT OF CASE.

A. C. Campbell, M.D., Obstetrician to Rex Hospital, Raleigh, N. C.

The placenta is said to be previa when it is attached to any portion of the lower uterine segment, and since dilitation of the segment is necessarily followed by hemorrhage from separation of the placenta, the condition is sometimes called unavoidable hemorrhage. Hemorrhages of pregnancy in the first months are usually due to abortion, menstruation, or lesions of the cervix, and are not profuse. In the last three months they are almost always due to a premature detachment of a normally or abnormally inserted placenta.

FREQUENCY.

The frequency of placenta previa may be estimated at about 1 in 1,200 labors. It is three to six times more common in multiparæ than in primiparæ, and is more often met with in the working class. Multiple pregnancies furnish four times as many cases of placenta previa as do single pregnancies, and women beginning to bear childern late in life are liable to placenta previa in subsequent pregnancies.

ETIOLOGY.

Among the various causes which may result in faulty attachment of the ovum are conditions leading to enlargement and relaxation of the uterus and to changes of shape, that is, multiple pregnancy and uterine malformations; also conditions leading to changes in the uterine mucosa, as endometritis, abortion and tumors. A diseased endometrium is probably the fundamental cause.

VARIETIES.

In placenta previa centralis the placenta covers the lumen of the os after dilatation is complete. This form is very rare and the placenta is placed to a great extent to one side of the uterus, especially the right side. In placenta previa partialis the placenta partially covers the lumen of the os after complete dilatation, and there is more placental substance on one side of the os than on the other. In placenta previa lateralis or marginalis the placenta does not reach beyond the margin of the internal os. This is the most common form. These several varieties can be arranged again in two groups, complete and incomplete. The complete variety comprises the placenta previa centralis, while the three varieties remaining are embraced under the term incomplete.

A woman with placenta previa may begin to bleed as early in pregnancy as the second month, but the first hemorrhage usually occurs in the trimeter. There is a sudden gush of blood often without apparent cause and without pain. The bleeding commonly recurs in increasing amounts and at decreasing intervals as pregnancy advances. The cause of the hemorrhage during pregnancy is the impact of the embryo and fetus upon the placenta and pressure of the ovum upon the lower uterine segment, and the imperfect attachment of the placenta in certain areas to the uterine wall. The first hemorrhage may occur in labor, which may be ushered in by a profuse outpour of blood, even in lateral placenta previa. Ordinarily, however, the greater the bleeding during pregnancy, the more likelihood is there of serious hemorrhage in labor. The bleeding in labor is easily explained. The placenta is attached in that portion of the uterine cavity which must be dilated to allow the advance of the presenting part. The stretching of the uterine walls expands the area of the placental site, and necessarily detaches the placenta, while the reversal of the ordinary mechanism of placental detachment keeps the gaping mouths of the torn utero-placental vessels wide open, and allows the blood to pour from them till the hemorrhage is checked by syncope, by thrombosis, by the pressure of the presenting part, or by a vaginal tampon. The bleeding is usually most profuse just as the uterine contraction passes off. During the height of the pains it may cease altogether, from the pressure of the presenting part or of the intra-uterine contents upon the placental site.

SYMPTOMS.

The principal symptom is hemorrhage. It occurs without warning and varies from a few drops to an amount sufficient to produce grave anemia. It occurs at any time of pregnancy, from the begining of the third month to delivery; it is most frequent in the last month, though

it may be looked for after the sixth month. The more nearly central the placenta, the earlier will be the occurrence of hemorrhage. During pregnancy the amount of blood lost is not so apt to be dangerous, but at the completion of gestation or during the commencement of labor the loss of blood may be profuse, the constitutional symptoms of hemorrhage supervening, and within a few minutes the patient's life may be placed in great danger, death occurring within a few moments of the beginning of the hemorrhage.

On digital examination the cervix is found enlarged in all directions, the vaginal vault is soft and boggy, the presenting parts cannot be plainly felt. Finally the maternal face of the placenta or its margin is felt over the internal os.

TREATMENT.

This is still an open question. Dr. Zinke, of Cincinnati, says: "Those who advocate abdominal Cæsarean section in every case of placenta previa are as mistaken as those who will not admit that hysterotomy is ever necessary in this condition. The great majority of cases of placenta previa, it is true, may be favorably treated by the use of the tampon, the rubber dilator, version or slow extraction of the child, so far as the mother is concerned. Not so with the child; the majority, or at least a very large percentage of the children perish under this treatment." He also says that abdominal hysterotomy is indicated in every case of placenta previa in which the hemorrhage must be controlled, no matter what the condition of the cervix, the character of the child's presentation or the location of placental implantation. "If the placenta has developed normally the hemorrhage from a placenta previa centralis may be readily controlled if the os is dilatable, and the presentation vertex or breech, but hemorrhage may be difficult or impossible of control in a case of placenta previa lateralis, marginalis or partialis, if the placenta is abnormally developed, (for instance, when the chorionic villi have penetrated the muscularis) and when, in connection with this condition, the cervix is elongated or the os very rigid, and the presentation of the child such that a correctly placed tampon or the insertion of a rubber balloon will neither control the loss of blood, nor cause obliteration of the cervix or dilatation of the os. A child delivered through the abdomen in a case of placenta previa has a far better chance for life than one born in the same manner in eclampsia."

CASE REPORT.

Well nourished white woman weighing about 125 pounds, age 33, occupation, household duties; mother of five children; all labors normal, had no miscarriage; family history negative.

Personal history: Barring the ordinary diseases of childhood she had always enjoyed good health, prior to and during the present pregnancy, until the ninth month, when albumin was present in her urine for the first time. It grew worse and she complained of headache and seeing sparks before her eyes. She was immediately put to bed and placed on milk diet and salts. In about ten days she felt as well as usual, urine contained only a trace of albumin, and she went about her household duties as usual. Few days later was called to see her about 6 P. M. She said, "Doctor, I am bleeding to death." She was preparing supper at the time and blood gushed from her all at once without any warning. She was in a cold, clammy perspiration, feeling faint and calling for air.

Examination admitted index finger, placenta felt covering the os. No membranes to rupture could be found. Examination caused more bleeding. She was hurried to Rex Hospital with the intention of doing a bipolar version. After she was anesthetized, and on introduction of index finger she began to bleed so profusely I packed her as tight as possible and did a rapid Cæsarean section. Child cried out as soon as bag of waters was ruptured and four loops of cord removed from its neck. It seems impossible to secure either a living baby or mother by the vaginal route because of the repeated loss of blood. It certainly would have meant death to child in this case on account of the number of loops of cord around neck. The cervical opening was completely covered with placenta which was very easily detached. The patient was in such an exsanguinated condition normal salt solution was given intravenous and under the breast. Both mother and child made an uneventful recovery.

DISCUSSION.

Dr. R. L. Payne, Jr., Norfolk, Va.: There is nothing so successful as success, and I congratulate the doctor on the result of his case. At the same time I believe that even success may be used to establish dangerous precedent. I may be ultra-conservative, but I confess I believe that the treatment of placenta previa must, in the vast majority of cases and at the hands of the vast majority of doctors, remain an obstetric rather than a surgical procedure.

The statistics of placenta previa are vastly misleading. These statistics are based almost entirely on hospital cases under the old regime: cases in which hemorrhage after hemorrhage has occured, perhaps over several months, the doctor, hoping something will happen, waits and waits, and finally, when the patient is exhausted and perhaps already infected, after she has lost her best chance for recovery, she is sent to the hospital. The number of cases treated by laparotomy are yet too few on which to base any opinion. The operations have been done under the best circumstances, by the best operators, and the present statistics are those of the obstetric methods of treatment. I should hate to see this section go on record as favoring Cæsarean section as the only proper means of treating placenta previa. I admit that it is a good treatment under ideal conditions, but the vast majority of cases of pla-

centa previa do not occur under ideal conditions, the treatment is of emergency and admits of no delay. To be successful in the largest number of cases, the treatment must be such as a man of ordinary skill and courage may undertake. The average case ought not to take the risk of being moved; it should be treated at home, usually immediately, and if we could gather the statistics of such method, we would find them vastly different from the statistics we now have. Of course there will be cases in which we can temporize, where the hemorrhage is readily controlled; where the patient is near at hand and can be watched; where the surroundings are good. We may wait till the child is viable or possibly move to some hospital at a distance. But the fact remains we must usually handle obstetric cases in their homes, and if the profession shall discard well recognized methods and become imbued with the idea that cesarean section is the method of treatment par excellence, then we may expect a holocaust of death. Let us not forget the vast majority of babies are born in the country (city folks are getting too smart to have children) and in the homes of the poor, in the one case remote from hospital; in the other too poor to get the benefit, and we must realize the impossibility of Cæsarean section for most of these cases. The fault lies not in the old method of treatment, but rather in the execution thereof, the inexcusable delay and imperfect execution. I have a record of 25 cases of placenta previa treated by version, etc. Two of these mothers died, one five days after delivery, following immediately upon sitting upright in bed, the other died from recurrence of hemorrhage while being brought to the hospital. Four of the babies died, and so far as I know, the rest are living today. I am convinced in my own mind had these patients been transported to hospitals my results would not have been so good, for several of cases were almost pulseless when seen. I believe in surgery, but we tend to go too far and we must not deliver such teachings as can only be practiced by the few, when it is possible to do good work and get good results from less dangerous methods possible of execution in hands comparatively unskilled.

Dr. Burrus: I want to make a few remarks, because of the very great importance of Dr. Campbell's paper. We are living under somewhat different conditions to what we lived a few years ago. With the 'phone system, and railroad systems that we have had constructed all over the country, and in process of construction today, it brings almost everybody in this land in touch with a good surgeon, a good hospital, or both. We are dealing with a condition that has left the art or science of obstetrics and has assumed the name of gynecological. It has assumed the proportion of a surgical procedure. I know nothing of eye, ear, nose or throat. When I recognize a condition pertaining to these

organs, I promptly refer my case to a man who is specially prepared to handle this class of work. The day of one man specializing in all diseases has passed, and the sooner we refer these cases and place them where they should be, the better for our patients, and the lower will be the mortality in this condition.

I know of no disease that as a rule hands out the red flag quicker than does placenta previa. I know of no condition, as a rule, that you could put on a railroad train, or in an automobile, or as to that, in an ordinary horse-drawn vehicle, and carry them most any distance that you would want to, better than you could a condition of this kind. I make this statement advisedly, provided you act at the right time.

The many different methods of dealing with these conditions have presented themselves to us from time to time. Certainly any of us can securely tampon in the beginning of your conditions, or arrest the hemorrhage long enough to get that patient to an institution, or can wait for a man that is able to handle the patient. If that is true, then oftttimes we assume a responsibility that should not be assumed. I think life stands at the very highest possible point of the ladder, and that we should regard it in the highest kind of way. The way that is safest for the mother, as a rule, safest for the child is the method we should adopt. I believe Dr. Lee is very correct indeed when he throws a warning that it is very imprudent and very unright to say that every case of placenta previa, no matter as to conditions, or locations, should be subjected to a laparotomy. I believe if Barnes dilator was introduced at the proper time, and the physician place himself by his patient and every hour pump this Barnes dilator, you would be surprised to see how quickly you can open up that cervix. You will be surprised to see how quickly it will soften down sufficient to let you introduce your hand into the uterus and empty it.

What method or version you care to use is immaterial, the only thing is to empty the uterus and empty it quickly, but if the patient could be brought to a well regulated hospital with the equipment which would supply any demand that might arise, then the consideration of the child should be regarded, and I can't see why a lateral hysterotomy should carry any higher death rate than an ordinary cesarean section. I don't see why this should be greater than ordinary hysterectomy for fibroid, provided your case is properly handled, or properly prepared. These cases have, as a rule, a high acidosis.

I believe when we begin to study the relation of the blood mortality in surgical conditions are going to lower it very materially.

I wish to thank Dr. Campbell for his article. It is a paper we should all be glad to listen to.

COLOSTORRHEA, WITH A REPORT OF CASES.

BEN H. HACKNEY, M.D., BYNUM, N. C.

The diseases of the mammary glands have been discussed since the notable advance of our science by Celsus, over nineteen hundred years ago, but colostorrhea as such has seldom been discussed. We look upon colostorrhea as a symptom of catarrhal parenchymatous mastitis or a profuse secretion of colostrum from the mammary gland or glands not associated with pregnancy or the peurperal state.

REPORT OF CASES.

CASE 1. Female, white, age 18. By occupation, a restaurant waitress. Born in the State of Massachusetts, and has always lived there. She was seen first by me at the outdoor clinic of Harvard University, at Roxbury, Mass. Two years ago she began to have pain and swelling of the mammary glands at menstruation, which subsided in a few days. One year ago, she began work in a restaurant as a waitress, and acquired the habit of carrying dishes and waiters against her breast, which caused soreness; and the next menstruation following her new employment, her mammary glands began to secrete a yellow fluid, which aggravated her very much by soiling her clothing.

Examination. Patient well nourished, and showed all signs of health and vigor. The mammary glands were enlarged and full and showed a secretion of a thin yellow fluid. A breast pump was used, and one ounce of the fluid was removed. On examination, it showed a specific gravity of 1.020 and alkaline in reaction. This was all the examination given.

Treatment. The official Belladonna Ointment was applied with a pressure bandage, and the patient was given Potassium Iodide ten grains after eating and ordered to return to the clinic in three days. On her return, her conditions were not improved, and treatment was continued as before. And the same treatment was used for a month without results, and I left the clinic with the patient unimproved.

CASE 2. Female, colored, age 19, a school girl by occupation, came to me for enlargement of the mammary glands, with a formation and secretion of a yellow fluid that often ran down to her feet during the day. Her menstruations were regular and normal. She gave a history of her sweetheart's fondness of playing and nestling with her mammary glands every time he came to see her, which was about three times a week.

Examination. She was well nourished, and had the appearance of being a girl in perfect health. The mammary glands were enlarged, and a yellow fluid was easily pressed out. I used a breast pump and removed one and one-half ounces of the fluid, which was a deep yellow color, with a specific gravity of 1.035 and alkaline in reaction, coagulated into a solid mass when heated, and coagulated into a semi-solid mass, when allowed to stand for twenty-four hours without heating. On allowing her to use the breast pump

herself, she was found to secrete eight ounces of this true colostrum in twenty-four hours.

Microscopically. It was filled with unequal size, fat globules, and a large number of granular bodies or colostrum corpuscles, with a few epithelial cells.

Treatment. I exhausted my knowledge and use of the Pharmacopæa in the treatment of this case, both with and without pressure bandage, until finally, I used the fluid Extract of Ergot in half a drachm doses every four hours with application of pressure bandage to the mammary glands, which resulted in a complete cure of the patient in two weeks. Six months later, the above patient began wearing a high-front corset and the colostorrhea returned. The same treatment was used as above cited and all symptoms subsided in ten days.

Case 3. Female, white, age 18, occupation domestic, came to me with the following history. Began to menstruate at 15, and has always been normal and regular. One year ago she began to have pains and enlargement in her mammary glands if she wore a high-front corset during menstruation. Three months ago her mammary glands became more enlarged at menstruation, and she wore her corset tighter to hide the enlargement and her mammary glands began to secret a thin yellow fluid, which has been growing worse.

Examination. Patient well nourished, and had the appearance of being a girl in perfect health. The mammary glands were enlarged, but not tender to pressure. The fluid was seen on her clothing, and oozing from her nipple. I used a breast pump, and removed 2 ounces of the fluid from both glands, which was a deep yellow in color, with a specific gravity of 1.030 and alkaline in reaction; coagulated into a solid mass when heated, and coagulated in a semi-solid mass when allowed to stand for a few hours without heating.

Microscopically. The fluid was filled with unequal size, fat globules and a large number of granular bodies and colostrum corpuscles. The blood examination showed the hemoglobin 90; red cells, five million; whites, nine thousand.

Treatment. Fluid Extract of Ergot was given in half drachm doses every four hours, and a pressure bandage was applied to the mammary glands, which resulted in a complete cure of the patient in eighteen days.

THE OPERATION OF CHOICE IN PROLAPSE AND RETRODISPLACEMENT OF THE UTERUS.

J. E. Ashcraft, M.D., Monroe, N. C.

In the curative treatment of prolapsed uterus and retrodisplacement of the uterus, we are necessarily forced to operative procedure, if we except a few cases of simple descensus uteri and simple retroversion. In descensus uteri, we know that many cases are amenable to hygienic and

tonic treatment, and one may always at least consider the possibilities of the pessary and tampon. But, alas! Too often they are only deceptive by-paths, and not at all avenues to cure. It is only in the recent puerperal cases that we have right to place much confidence in the pessary, although one may be excused for using it in the young matron of child bearing age where it retains the uterus in the normal position and where it is worn with comfort.

When one is convinced that the adnexa are healthy, the Alexander operation is unquestionably the one of choice. The bug-bear has been how to convince oneself that he is dealing with healthy appendages. This uncertainty of diagnosis has inspired an unwarranted lack of confidence in the operation itself. Latterly, however, many operators are taking the ground that, in a virgin, or in a multiparous woman showing no evidence of infection under careful bimanual examination under anesthesia, one is warranted in the procedure. Of course, disease of the appendages or evidence of intraperitoneal adhesions constitute positive contraindications. Careful examination renders the risk so slight that it can be disregarded.

While it is not so satisfactory as suspension or fixation in complete procidentia, because it does not secure as much elevation of the uterus, and it does not offord as strong a support against recurrence, carefully selected cases give satisfactory results when everything is considered. It is not properly thought of in women past the child bearing age, for all such cases plainly call for ventral fixation. The operation has practically no mortality, and subsequent pregnancies pass without dystocia.

The use of the word "fixation" has no proper place in the nomenclature descriptive of the operation devised by Kelly. This operator never did a fixation, his operations always being suspensions. The early crude operations furnished many relapses and added many difficulties to pregnancy and labor, but perfected technic attained through gradual evolution has largely eliminated these dangers.

Under the present conditions, the following are accepted as indications:

1. A retroflexed uterus bound down by adhesions.

2. A retroflexed uterus with diseased tubes and ovaries. (If the adnexa require complete removal, it is better to amputate and remove the uterus instead of suspending it.)

3. Prolapse of the uterus and vagina. In these cases a suspension must be combined with the required plastic operations on perineum, vagina, and cervix, or relapse is to be expected.

4. If, in the course of the Alexander operation, one or both of the round ligaments are torn, ventral suspension is to be substituted.

The objections which have been urged against the operation are not considered valid. They are:

1. That the uterus is fixed and is held in an unnatural position.
2. That dysuria is a frequent and persistent symptom.
3. That serious difficulties follow in event of pregnancy and labor.

The first objection can not hold against a properly performed operation, since the band of adhesion quickly lengthens until the uterus reaches its normal level in the pelvis—within—generally two or three months after the operation. Admitting these facts, which have been abundantly demonstrated by Kelly's reported cases, one can not give credence to the tales of dysuria, for there can be no interference between bladder and uterus. Operators of experience declare that they do not find this symptom in evidence any more frequently following this operation than following any other abdominal operation.

It is generally conceded that reported cases of difficulty in labor following such an operation, were cases of "fixation" of the uterus, and were not "suspension" operations. It is not conceivable that a suspension band 3 to 5 millimeters long, permitting a freely movable uterus with the unhindered faculty of expanding and contracting in any direction, could be a factor in any difficulty inducing dystocia.

It has not been my purpose to consider the operation of shortening the utero-sacral ligaments, since it is yet on trial, and the time is not yet long enough to determine its value. Likewise, I pass by the operation devised by Wylie, Dudley, and Mann, for intraperitoneal shortening of the round ligaments. Although Simpson has perfected the operation, a final estimate in comparison with the known results of the Alexander operation, and with the Kelly operation for suspension, is not yet in place. Only a more extended experience can decide.

To me it seems that in the Alexander and the Kelly operations we have the operations of choice, provided always, of course, that the precautions are taken to insure careful examination under exactly the right conditions and that the cases are properly selected.

TRACHELOPLASTIC OPERATIONS AND THEIR RESULTS.

Drs. D. W. and Ernest S. Bulluck, Wilmington, N. C.

The classic methods of amputating or reparing the injured uterine cervix, introduced by Sims[1] and Emmett[2], have recently been the subject of reinvestigation. The light of recent study tends to lessen the confidence that has been reposed in these measures for so many years.

An analysis of the immediate and ultimate results of the classic amputations performed in Dr. Howard Kelly's clinic during the past twenty years has been made by Dr. V. N. Leonard[3], and the conclusions drawn from his work are that—

Nearly 5 per cent of the patients presented serious post-operative hemorrhage, occasionally after established convalescence.

Ten per cent of the cases suffered from decided augmentation of a preexisting menorrhagia or dysmenorrhoea.

Four-fifths of the women in whom pregnancy might have reasonably been anticipated to follow the operation, remained sterile.

On the other hand, 50 per cent of the pregnancies occurring after cervix amputation terminated prematurely, while among the few who progressed to full term even a larger portion experienced difficult and prolonged labor. * * *

The operation in all of the cases presented, consisted of the classic circular amputation, removing about three centimeters of the cervix above the external os.

Later Leonard[4] tabulated the post-operative effects of trachelorraphy for comparison with those of cervix amputations, concluding as follows:

The presence of a marked endocervicitis should be considered as contraindicating simple trachelorraphy, for although trachelorraphy may render a mild endocervicitis more amenable to treatment, it cannot be considered like amputation of the cervix—a curative measure for this condition.

Fertility is much more likely to follow trachelorraphy than amputation of the cervix.

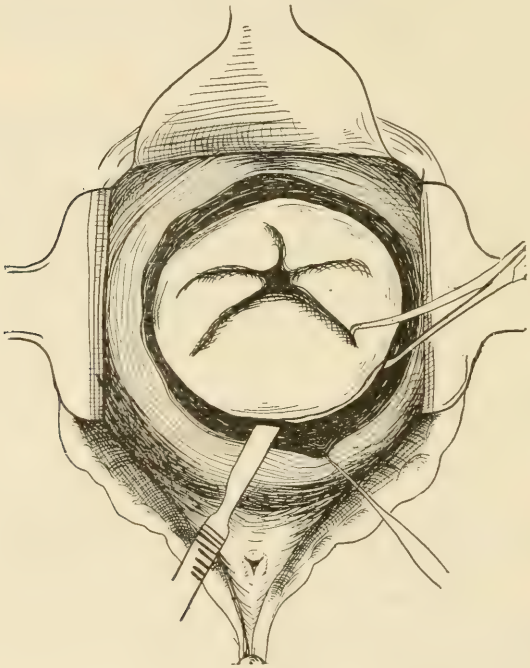
After amputation of the cervix, the incidence of abortion and premature delivery is greatly increased, while trachelorraphy has no effect upon the course of subsequent pregnancy.

Labor after cervix amputation is usualy difficult, while after trachelorraphy it is almost always normal; hence amputation of the cervix is to be avoided in the child bearing period, trachelorraphy being the operation of choice in properly selected cases.

Assuming the accuracy of Leonard's conclusions, it remains to decide what criteria should determine the selection of a given case for simple trachelorraphy and how we should perform an indicated ampu-

tation of the cervix without incurring the post-operative hemorrhage and the disturbance in the menstral, reproductive and parturient functions.

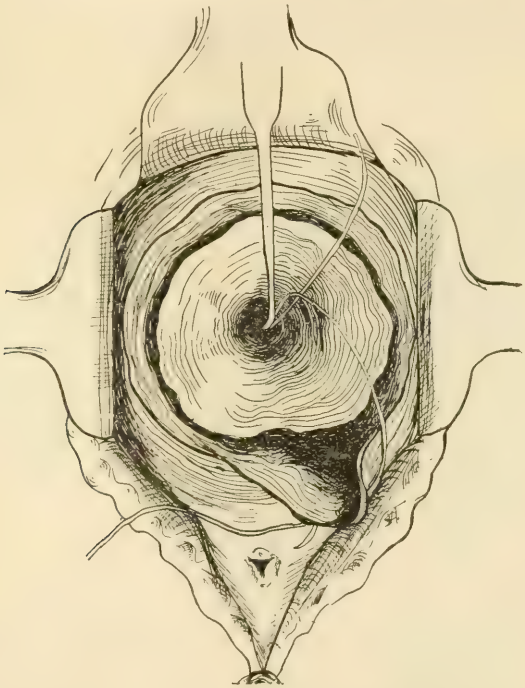
It should be born in mind that it is not the cervical tear, but its consequences that we attempt to remove by operation. That this is true is evidenced by the number of women whose tears are unaccompanied by abnormal conditions. The dominant factor that establishes the morbidity of a cervical lesion is the incidence of infection. (Sturmdorf.) The infection may begin as a puerperal sepsis with incomplete recovery



or it may begin insidiously and continue its chronic course. The subjective symptoms leading to operation are not those of the cervical lesion. The cervix merely acts as a portal of entry; the infection passes from there to the lymph vessels; these en route enmesh every bundle of uterine muscle. This intramuscular lymphagitis partially immobilizes the muscle bundles by plastic inflection of their sheaths. (Schwartz.) The periadnexitis following the extension of the process thickens the tunica albuginea of the ovary and prevents the normal rupture of the graafian follica, causing the development of retentioncysts and functional amenorrhea. This is the pathological process which results in chronic pelvic abscess, pyosalpinx, sactosalpinx, ovarian sclerosis and uterine

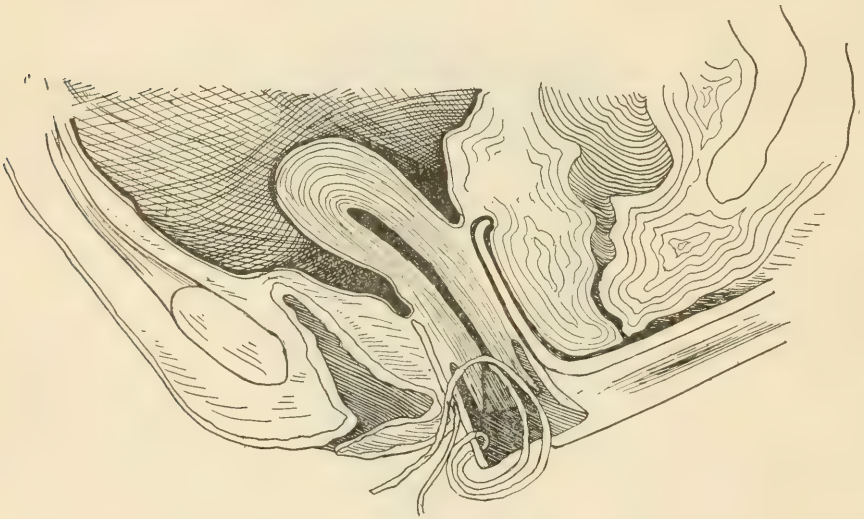
fibrosis. The uterus undergoes normal rythmic contractions, and when this contractibility is impaired by the results of infection, abnormal contractions result; this is evidenced by dysmenorrhea and local circulatory stacis productive of myometrial menorrhagia. This nutritional and functional derangement alters the endometrium and its specific decidual potentialities, causing sterility and abortion.

Since the cervical lesion admits the infection simple trachelorraphy finds its utility during the puerperium, when its prophylactic potency is greatest. The early operation having been omitted and chronic in-



fection ensuing, Emmett's trachelorraphy, while a plastic success, is not curative, for the symptoms leading to operation are the result of an extention of the infection to regions beyond the cervix. Again the cancerous potentialities of the chronically inflamed area beyond the range of Emmett's operation must be borne in mind. Ewing[5] has recently shown that "chronic catarrhal endocervicitis precedes cancer in a great majority of cases . . . and the cervical erosion is the most definitely established lesion known to initiate cervical carcinoma. We are forced, therefore, to the conclusion that late trachelorraphy, wherever indicated, is not curative, and when apparently curative, was probably superfluous.

While thus restricting trachelorraphy to the puerperium, we augment the range of cervical amputation for chronic cervical lesions. Sturmdorf[6] has attempted to obviate, as far as possible, those derangements, noted by Leonard, that follow this operation. He believes that the post operative effects are the result of the technique of the classic method of the cervix amputation. This writer points out that the circular ablation of the cervix is followed by a retraction of its peripheral muscle fibres, since these fibres are longer and therefore have a greater range of contractability. This peripheral retraction and the weakness of the delicate endometral edge renders the sutural retention purely transitory. The two flaps separate and expose a beveled cervical stump, which heals by



granulation. If the patient comes to child birth, the annular cicatrix incapable of physiological retracticle expansion, presents the dystocia noted in Leonard's tedious deliveries. In some instances the flaps do not heal, and the raw areas becoming infected, reëstablish the original lesion. To avoid these shortcomings, Sturmdorf has evolved an operation for the removal of the cervix, that in consideration of the poor results following the older procedures certainly warrants an extensive trial. He describes his operation as follows:

1. Outlining and free mobilization of an ample circular flap from the vaginal coat of the cervix.
2. Complete excision of the entire cervical mucosa to the internal os, with preservation of its peripheral muscular layers.
3. Sutural coaptation of the vaginal cuff to the denuded cervical cavity.

The dilator and curette are absolutely excluded from our armamentarium for this operation.

The main object in the first step is the formation of an ample mobile cuff of vaginal mucosa. With this in view, the outlining incision is carried around the cervix, closely skirting the demarcating border between its healthy vaginal sheath and the diseased mucosa, running parallel to the indented line at the lacerated points. The edge of vaginal covering thus outlined is freely mobilized by blunt dissection from its underlying tissues, completely around the entire cervix, up to the level of the internal os, exposing the circular arteries as for high amputation. In very extensive lesions it becomes necessary to brush the lower pole of the bladder from its uterine and vaginal attachments for a sufficient distance upward.

The pouting everted cervical mucosa is now circumcised and cored out of its muscular bed as a hollow cone, leaving a raw funnel-shaped cavity.

Trimming the loose vaginal cuff to serve as an accurate lining to the interior of the muscular funnel, its retention in this position is secured in the following manner: Beginning with the interior segment of the circular flap, a long strand of heavy silk-worm gut is passed on its vaginal surface, transversely through the free border of its central tip one-eighth of an inch from the edge, like a mattress suture, the entrance and exit of the strand embracing a quarter inch of tissue.

The right free end of the suture is now carried into the cervical cavity to a point just above the internal os, where, piercing all tissues in a direction forward, upward, and to the right, emerges from the vaginal surface at the base of the flap.

The left free suture end after reaching the same point above the internal os, passes in the same manner forward, upward, and to the left, so that the two free ends, diverging in their transit, reappear on the surface of the anterior vaginal fornix, about one-fourth inch apart, where they are left loose for the time. The suture course for the posterior flap segment runs parallel to the above, but in a posterior direction, its free ends emerging on the surface of the posterior vaginal fornix. Now by tightening each individual set of suture ends, we draw the flap segments into the cervix, line its whole cavity with vaginal mucosa, the edge of which is thus approximated to the circumference of the internal os, where it is retained in apposition as long as desired. In most cases no further suturing is necessary or desirable, but should either lateral edge gape, an additional chromic stitch may be introduced. The sutures are left long to facilitate their removal.

For greater ease and control in directing the suture through the cervical tissues, a double-curved Peaseley needle should be substituted for the round needle after engaging the tips of the flap in the first stitch.

A narrow strip of iodoform gauze, introduced with the object of mainstaying a flat, uniform coaptation of all raw surfaces, finishes the operation. This gauze is removed after the fourth day, when the patient is permitted to leave the bed and walk about. The silk-worm gut is removed after two weeks when the loops are found loose and accessible.

The specific features of the operative method thus outlined effect the complete elimination of the infectious focus by extirpation of the diseased cervical mucosa; preserve the normal arrangement, contour, and func-

tions of the cervical musculature; obviate the mechanical difficulty; and secure the permanency of accurate sutural coaptation of flap to stump.

I do not claim an ideal restitution to the normal in all cases—so perfectly a balanced mechanism as the uterus, when once deranged, cannot be perfectly restored by surgery—but I may contend that the procedure here advocated obviates in the greatest number of cases the detailed shortcomings in the prevailing tracheloplastic methods and results.

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ILLUSTRATIONS.

1. Showing circular incision of vaginal mucosa. Knife in act of circumcising the diseased cervix.

2. Cervix removed leaving funnel-shaped cavity. Suture passed through vaginal flap carried into the uterine cavity to be passed upward and tied.

3. Showing cupped uterus with vaginal flaps so sutured that tying on the front of the uterus will carry the flap into the cervical canal.

PUBLIC HEALTH AND EDUCATION

ARTERIO-SCLEROSIS AS IT APPLIES TO THE BUSINESS MAN.

CHARLES O'H. LAUGHINGHOUSE, M.D., GREENVILLE, N. C.

Some phases of preventive medicine can best be taught by Boards of Health, some by practicing physicians; but to acquaint the public, especially the productive, energetic, constructive, intensive business man, that there is such a thing as arterio-sclerosis and that it is largely preventable, is worth the effort of the profession as a whole.

We show the consumptive how to prolong and save his life. We take care of the defects of school children. We teach everybody how to avoid infectious and contagious diseases. We vaccinate for smallpox. We immunize against typhoid. We print and disseminate information for all kinds and conditions of men, and we do it largely through the business man's influence, his money, his vote, and his coöperation. Therefore, we most emphatically owe it to him to give freely of whatever information we possess which tends to prolong his life, enhance his happiness, and further his usefulness.

Decay and degeneration of tissue are necessary companions to advancing years. None of us who live long enough can avoid growing old. But the business man's manner of living is so conducive to the premature appearance of arterio-sclerosis that he, above all others, is most markedly prone to acquire it.

The best type today is living too rapidly, burning the candle at both ends, growing old prematurely, so much so that it is alarming how short a time he stays young. Think of the millionaire widows in the world!

The business man eats too fast and too much. Many drink too much. He throws into his circulatory system without knowing it, excessive food and fluids, combined frequently with toxic products, which cause too early a condition of high arterial tension. He neglects his bowels and thereby causes absorption of poisonous products from the intestines which brings about a rise in blood pressure. He foregoes even mild exercise, which is an essential feature to the art of living long. If he does not abuse his body by overeating and drinking, and so wear out his splanchnic vessels, excessive brain work and worry and all their attendant evils become his habit.

He should be taught that he is entirely dependent on his circulatory system and that every man is as old as his arteries; that the thorough chewing of food is a process that keeps men a long time young; that requisite sleep and recreation by bodily exercise is essential to all animal life; that excessive work, worry and nervous tension puts a something into the tissues which hardens the arteries and raises blood pressure; that alcohol brings about brittle arteries; that sexual excess and syphilis cause arterio-sclerosis.

The prevention of premature arterio-sclerosis may well be labeled a plea for a rational plan of daily living to which moderation is the keynote. To grow old gracefully is an undertaking which must be begun when young. Habitual bodily hygiene, begun early in life, not only as to diet, exercise, temperance, sleep and rest, but recreation as well. Mental change. One's life should be planned so as to bring into each day a diversification of mental exercise, a diversification of interests. It is restful,—so much so that some wise man has said that "rest is but change of occupation."

Hobbies are ofttimes the salvation of business men. They may be ridden hard for they help to bear men away from daily cares, business ruts and worries.

The man who can best keep the balance between his mental and physical work is the man who accomplishes most, is happiest, and who, all other things being equal, will live and produce the longest.

The trend of modern medicine is toward prevention. We possess State authority to control epidemics. We urge over and over again the value of early diagnosis in all chronic diseases. We know that many of them,—and this applies particularly to arterio-sclerosis,—can be largely prevented by the recognition of and the institution of proper hygienic and medical treatment.

It is every physician's duty to instruct the business man in the fundamental rules of health. Accurate knowledge concerning the prevention of disease should be spread among the laity. Correct information concerning the modes of infection and dangers of waiting until disease is well advanced, places people where they can with greater certainty nip ill health in the bud. It is difficult to turn people away from the habit of having a drug clerk prescribe for their ills, but they can be educated out of it. It is unfortunate that most of the pains and aches that flesh is heir to speedily pass away with little or no treatment,—for herein lies the strength of charlatanism and quackery. Unfortunate, yes, for a man cannot tell whether the trivial complaint from which he suffers is any different from the one that was easily conquered six months ago. But instead of recovering he grows worse. Hope leads him to

dilly-dally until he at last seeks medical advice, only to find that disease has made such progress that little can be done. Is the profession or the public to blame?

The fight for existence is keen. Competition in profession and trade is acute. So much so that to rise above the average requires exceptional physical as well as mental powers; therefore we should instruct the business man to consult his doctor twice each year. He has an expert go over his automobile at stated intervals just to prolong its life and efficiency. He takes an inventory of his business assets and liabilities each fiscal year. He studies this and that branch of his affairs with an eye view to safety first. He employs this system and that so as to stop business leaks. He pays large amounts annually for insurance, life and fire. Yet he fails to have an efficient engineer to go over his greatest business asset, namely, himself. And his failure is because he has not had the importance of it brought to his attention. The dentist has his patients return at stated intervals, only to see if all is well. How much more rational would it be if men and women past the age of forty had a careful physical examination made twice a year just to find out if all is well.

SPECIALISTS AND HEALTH WORK.

MARVIN L. SMOOT, M.D., FAYETTEVILLE, N. C.

In presenting this little paper, I refer to all specialists in a measure, but discuss the subject more particularly from the viewpoint of the eye, ear, nose and throat man, of which specialty I am.

Inasmuch as health work is largely done by the medical profession, it follows as a natural sequence that *all* specialists should be interested and participate therein. For while they may not come in contact with their clientele from as many angles as the general man, they, nevertheless, have to do with just as important points in health work, as far as they go. And as no specialist can hope for the greatest success in his own sphere of operation without taking into consideration all other phases of the great field of medicine, he should in like manner have before him a pretty comprehensive view of health work at all times and in all its various phases.

We have learned in modern days that the most serviceable treatment of disease is that treatment which prevents disease, and if it is the moral duty of the profession as a whole to teach sanitation, public health

and hygiene to the people at large, it is certainly the moral duty of each integral part of the profession to add its item of teaching and influence.

It is hard enough for our State and county health officials to get full sympathy and coöperation from the public when every doctor lends the weight of his influence to the work, but when he declines to do his part, he not only fails to be a neutral, but makes himself, in spite of himself, a positive handicap to the process.

Health work is primarily and essentially educational. The principles are directly opposed to most of the traditions and superstitions which have been handed down to the laity for generations, and they are in most cases loath to give them up for newer, better and more practical things. A doctor, whether in general or limited practice, wields a great influence in the community in which he lives, and if, perchance, he is old fogy enough, or wooden-hearted enough to side with an unsympathetic laity, he can make life a burden for the public health workers in his bailiwick.

Granting now that the specialist's views are in conformity with modern prophylactic science, and that he has the good of his fellow-man at heart, he is, day by day, consciously and unconsciously hammering in the minds of his clientele these great and vital truths of which we are thinking.

His office technique and manner of speech should be such as to impress upon the mind of the laymen these things: "As a man thinketh in his heart, so is he," according to our best Book, and if that scripture applies to anyone it applies to the doctor about his daily duties. He has ample latitude for the propagation and promulgation of this modern gospel of sanitation. To get a comprehensive view of the things made possible by the application of modern methods and, at the same time, of the miserable results which *do* exist by reason of adherence to the aforesaid ancient superstitions, one has but to take a retrospective view of his case records.

The impaired eyes, the impaired ears, the impaired respiratory organs, are in countless instances traceable to what we doctors would consider either a woeful lack of knowledge or the most flagrant abuse of it. And while the specialist meets his incorrigibles and those who think his motives are all mercenary, just the same as the health officials and general practitioners meet them; and while he is oft-times made sick at heart and disgusted at the responses he receives, yet there are oases in his desert of despair; responses and results which make his heart glad and force upon him the conclusion that, after all, maybe his efforts are worth while.

It is right and proper that every specialist should be abreast of the times in public health work, and he should be a positive force in the community in which he labors in guiding the people in the paths of the advancing science and getting the best attainable results therefrom, by assisting in the encouragement and enforcement of the public health laws.

Shall we specialists follow the lines of least resistance and look exclusively after our personal affairs, or shall we enter the open door of opportunity, put a shoulder to the wheel and do something which is really worth while?

ADDRESS.

MR. WADE H. HARRIS, CHARLOTTE, N. C.

Mr. President, Members of the State Medical Society, Ladies and Gentlemen:

It is with misgivings that I appear before this gathering of distinguished professional men and educators, an humble layman, shorn of technical equipment, yet the compliment this Society has paid the newspaper fraternity of North Carolina in requesting representation in the records of its meeting, was of a nature requiring at least a responsive effort. I have been asked to read an address on "The Newspaper and Public Health," and opportunity is opened to give recognition to the excellent endeavors of the papers of North Carolina in support of the health campaigns by the Medical Society and the State Board of Health, and out of which have already sprung so many good results for humanity. It is a pleasure to have so fine a token of the appreciation of the doctors for the part the newspapers have played in upholding the hands of advanced medical science and in arousing a public sentiment that has been instrumental in placing North Carolina among the list of States with a proud record for good health work, the latest manifestation of which comes in the admission of the State to the Federal Registration area.

The newspapers took an enthusiastic part in bringing to the attention of the people the importance of an accurate registration of vital statistics and what the success of that system would mean to the State. They fell into line in the work with a readiness that accomplished the desired end long before the doctors had hoped for. The State Medical Society has been making a persistent fight for this measure for years

past, but there was much of prejudice to be overcome, and it was only at the last session of the Legislature that the proper kind of a law was framed. The doctors then went before the people in the determination to educate them to the advantages of vital statistics registration and the newspapers gave willing aid. Before a State can be accepted into the Government's registration area, it must show an established actual efficiency in its system of 90 per cent. North Carolina showed an efficiency of every nearly 95 per cent, and took its place with Virginia and Kentucky, the only two other Southern States so far admitted.

The very first result of the admittance of North Carolina into this Federal registry area, was the promulgation by the Government that the death rate is 13.6, which is the death rate of the registration area of the United States in 1914. The Federal Government gives its guarantee to this low death rate and it is so proclaimed to the world. North Carolina is advertised to home-seekers as one of the States of standard good health, and a climate, as has been pointed out by a member of the State Board of Health, "alike enervating and pregnant with moribific influence to the human race." North Carolina can now officially disprove the stories that have been of general circulation that it is a State where health conditions are not of the best. A more satisfying feature is that our people will live in the knowledge that they are surrounded by the best of safeguards to public health and by the best conditions that medical science can provide. The State that has the health guarantee of the Federal Government possesses an asset of untold value.

This latest accomplishment in the good health campaign was one of the larger things. A smaller, yet nevertheless an important endeavor, was the war directed against the fly. Two or three Summers ago the papers in the State were shouting at the people to "Swat the Fly." They printed pictures showing the fly in his most repulsive light. The people joined in the war with spirit and today the common boast of the North Carolina town is its scarcity of flies. The papers called on the farmers to protect their wives and children by screening their homes and throughout the State the home that is not now protected by screens is the exception. The fly is a small thing, but his decimation has counted large in the good health score of the State.

Simultaneously there had been inaugurated and was being prosecuted a campaign for dairy inspection. The restaurants and hotels were included and the standards of all were raised. North Carolina has secured a comfortable assurance in its supply of pure milk and pure food. The water supply of towns and rural communities has not been neglected and the facilities placed at the disposal of the people by the State for securing analyses has been availed of to such an extent that it

might be said the public of the State has provided with pure drinking water.

The power of the newspapers in creating public sentiment has had happy illustration in recent history in this State. The value of the assistance of the press is not easily overestimated. It was truthfully observed at a time long gone by that "the true Church of England, at this moment, lies in the editors of its papers. These preach to the people daily, weekly." In the exercise of this influence the papers of North Carolina have rendered a far-reaching aid to the medical fraternity in the work of arousing the interest of the people in the matter of improving health conditions. To some who might have taken a selfish view of the case, it may have appeared that the papers had entered into the good work with a zest that would operate to the financial disadvantage of the doctors. They had made a call on the papers to aid them in making North Carolina a healthy State and the response was so willing and so effective that they seemed in a good way to put the doctors out of business. By bringing the State into a condition of "joy, temperance and repose," they were making ready to "slam the door on the doctor's nose." But if, through the activities of his ally, the North Carolina newspaper, the practitioner is to eventually find his occupation gone, he has himself to blame. The newspapers were invited to do the work. They were not easily persuaded. It was at a meeting of the North Carolina Press Association five years ago that a resolution was introduced to make the State pay for the publicity sought for its health campaign through the *Bulletin of the State Board of Health*. The very discussion that followed gave the inspiration to the editors. It opened their eyes to the field of opportunity to do the people a great service in arousing them to the importance of the work undertaken by the doctors in their behalf and in a short time almost every paper in the State was publishing health matter. There had come to the editors of the State papers a proper conception of their duty and the health propaganda was given golden wings.

The most important work of the press has been in the battle of good health against alcohol. Where former traditions had it that liquor was good for every ailment that flesh is heir to, the papers have brought the people to the understanding that it is good for none. In the creation of a prejudice against alcohol as a medicine, the papers have laid a foundation upon which the doctors have easy work to build, for, with alcohol banished the most common and the most insidious enemy to public health disappears.

The banishment of liquor from the medicine chest accelerates the approach not only to a new and better standard in public health, but in

the morals of the country. In recent days the world has stood in shocked and sorrowful contemplation of the God of War charioteering through a Continent and leaving an ever widening river of blood in his trail, but the weeping of the widows and the wailing of the orphans assailing his ears is only a faint echo against the tumultuous wave of anguish that has swept over the civilized nations for ages past in the wake of King Alcohol. Liquor has drenched the world in a volume of tears that would cleanse the battlefields of all peoples from every crimson stain.

The changing condition is not being wrought because the doctor of today is possessed of more courage than the doctor of yesterday, but because he lives in the light of a better knowledge and has the assistance of the newspapers in spreading this light. The doctor is not making a fight on whiskey in the prohibition sense of the word. He is waging a campaign for temperance and health. It is a fight for health without alcohol.

The aid of the press in the instruction of the public as to the menace of the latter day visitations of the strange and baffling disease—pellagra —and of its equally strange, but more easily conquered companion—the hookworm—has been of notable assistance to the medical profession. They were new diseases and the people were incredulous. Perhaps they were old diseases under new names, but the people were slow to believe and still slower to act. I must confess that at first I was a skeptic on the score of hookworm, but Dr. Stiles came all the way from Washington to Charlotte with his line of samples and convinced me.

It is probable that the most conspicuous local service rendered the medical profession and the State by the newspapers has been in the typhoid fever campaign. At the outset there was encountered a prejudice that bid fair to balk the efforts of the doctors, but the papers inaugurated a campaign of education which was attended with excellent results. The State Board of Health, through the laboratory of hygiene, manufactured and furnished vaccine free of charge to the people of the State and 12 entire counties were covered. In these 12 counties 51,824 people were given complete immunization from typhoid. The typhoid cases were brought down in those 12 counties from 175 in 1914 to 132 in 1915. In addition to the people treated in the counties named, fully 50,000 have had treatment by whole-time health officers and various organizations.

A more striking illustration of the benefits of vaccination may be obtained by the experience of counties that conducted vaccination campaigns and counties that did not. Rutherford County was one of the latter. The typhoid death rate in that county increased 300 per cent

during the time that the typhoid death rate in the adjoining county of Henderson, that had conducted a typhoid campaign, decreased 25 per cent. In consequence of a campaign conducted in Wayne County, its typhoid death rate was reduced 65 per cent. The adjoining county of Lenoir did nothing and its death rate increased 25 per cent. Statistics for the vaccination campaign in the State as a whole are not yet available, but there is little doubt that the instances cited are fairly representative of results in other counties. Enough is known to make sure of the fact that in the assistance rendered the State Board of Health in so materially abating the typhoid fever menace and in so short a time, the newspapers have proved themselves a boon to humanity.

One of the proudest successes to the credit of the doctors of North Carolina is found in the establishment of the State Hospital for the treatment of tuberculosis, and yet it is doubtful if this success could have been attained at this time but for the useful work of the newspapers in creating a public sentiment in favor of that institution. Its benefits were persistently exploited, prejudice was combatted and the sanatorium was popularized through the educational efforts of the press in its behalf. The newspapers have also lent their influence to the general campaign against tuberculosis throughout the State and there again, the influence has been powerfully effective.

In still another direction, that of educating the people to the importance of medical inspection for the public schoods, the newspapers have proved an excellent ally of the doctors. The wisdom of this advanced step in safeguarding the health and even the lives of the children has had abundant evidence in a recent outbreak that caused all the schools and even the churches in one town in North Carolina to be closed. During the prevalence of the epidemic responsible for the closing of the schools and churches, the overlooked matter of medical inspection for the schools received discussion out of which, it is to be hoped, much benefit will flow to the entire State, for the value of the ounce of prevention never before had a more impressive demonstration.

Instances might be multiplied to show wherein the newspapers of North Carolina have worked powerfully to aid in the advancement of medical science, but it might be well to turn for a moment to bring up an example or two contrasting the powers of the papers for good or evil, as their course may be directed. It was 15 years ago that an eminent specialist of the Government, Dr. Joseph Kinyoun, was called to San Francisco to investigate an outbreak of disease. He pronounced it bubonic plague. The newspapers, out of local pride, at once adopted a mistaken policy. The fiat of the doctor was indignantly disputed. It was denied that there was a case of bubonic plague in the city. Not only

that, but the retirement of the doctor from the service was demanded. He was forced to leave the city. Later, the plague assumed proportions that alarmed the town and the Government was appealed to for assistance in its suppression. The doctor had been right and the papers and the people of the city had been wrong. There is no calculating the injury that was done San Francisco through this mistake on part of its people and its papers. In contrast was the attitude of New Orleans under exactly the same circumstances. When the medical experts pronounced the disease that had appeared there the bubonic plague, the papers accepted the fact and advised the people in the proper measures of extermination and precaution. The papers each morning announced any new case that might have appeared, giving the location of the house. The mayor and city officials united with the medical men in fighting the disease and in a short time New Orleans had been cleared of the plague. The country had been taken into its confidence, its commerce suffered little loss and the city emerged from the trouble in better sanitary shape and freer from danger to health than at any time in its history. Newspaper influence badly directed, was responsible for the demoralization in one city no more certainly than newspaper influence sensibly directed was responsible for the safe and speedy deliverance of the other city. Happily, the newspapers of North Carolina have manifested a fine sense of discrimination. They are fighting with the doctor instead of against him.

The doctors and the papers. The health and happiness of the people of a great State are largely in their keeping. "Together let us beat this ample field." Combining their efforts to a common end—the education of the people in the sane and safe rules of good health and to the importance thereof—they could in the course of time rid the State of all preventable diseases, and that happy condition once secured, a public that should come into an appreciation of immunity and its blessings, could be depended upon to maintain it. There should be no reason why we could not have a State clear of disease of a preventable nature. But we should not be content to stop there. The newspapers and the physicians should set the higher mark of giving North Carolina the finest health record of any State in the Union. With the doctors leading the way and the papers urging the people to follow on, our State might easily be placed at the head of the list. The fight for a State with the minimum of conditions productive of disease and the maximum of health, has been more than half won. The medical and health organizations have brought about results out of which should come every encouragement to renewed endeavor. The work of the present day has one tremendous advantage over that of the pioneers in the good health campaign in North Carolina.

It has an educated public sentiment behind it and it has an enlightened coöperation. We are out of the woods. The crest of the hill has been negotiated, the rougher places have been left behind and the going is good. In the noble task of giving North Carolina a clean face and a sound body, God speed to the excellent and capably organized service represented in this gathering.

Dr. Giles, of New York, gave an illustrated lecture on Modern Methods of Teaching Surgery.

PROCEEDINGS

OF THE

HOUSE OF DELEGATES

DURHAM, N. C., Tuesday, April 18.

The House of Delegates was called to order by the President, Dr. M. H. Fletcher.

The following county societies responded to the roll call:

Society.	*Delegate.*
Bertie	Dr. L. B. Evans.
Buncombe	Dr. D. E. Sevier.
Burke	Dr. I. M. Taylor.
Cabarrus	Dr. P. R. McFayden.
Caldwell	Dr. A. A. Kent.
Catawba	Dr. J. H. Shuford.
Chatham	Dr. L. E. Farthing.
Cumberland-Hoke	Dr. K. G. Averitt.
Duplin	Dr. J. W. Carroll.
Granville	Dr. O. W. Holloway.
Guilford	Dr. D. A. Stanton.
	Dr. J. T. Burrus.
	Dr. W. M. Jones.
Halifax	Dr. T. B. Kitchin.
Haywood	Dr. J. H. Way.
Iredell-Alexander	Dr. M. R. Adams.
Lenoir	Dr. J. M. Parrott.
Lincoln	Dr. L. A. Crowell.
Martin	Dr. Wm. E. Warren.
Mecklenburg	Dr. W. M. Allen.
	Dr. J. E. S. Davidson.
Montgomery	Dr. C. Daligny.
Nash	Dr. L. W. Kornegay.
New Hanover	Dr. Ernest S. Bullock.
Onslow	Dr. R. L. Daniels.
Orange	Dr. Wm. DeB. MacNider.
Pasquotank-Camden-Dare	Dr. Oscar McMullen
Randolph	Dr. T. I. Fox.
Rowan	Dr. R. V. Brawley.
Surry	Dr. J. W. Ring.
Union	Dr. H. D. Stewart.
Wake	Dr. Albert Anderson.
	Dr. Z. M. Caveness.
Warren	Dr. G. H. Macon.
Washington-Tyrrell	Dr. B. F. Halsey.
Wilson	Dr. A. F. Williams.

The following delegates were elected members of the Nominating Committee:

Society.	*Delegate.*
First District	Dr. Benj. F. Halsey.
Second District	Dr. W. E. Warren.
Third District	Dr. Cyrus Thompson.
Fourth District	Dr. A. F. Williams.
Fifth District	Dr. L. E. Morris.
Sixth District	Dr. G. H. Macon.
Seventh District	Dr. L. N. Glenn.
Eighth District	Dr. J. T. Burrus.
Ninth District	Dr. R. V. Brawley.
Tenth District	Dr. D. E. Sevier.

Dr. M. H. Fletcher: Dr. Picot has a very important matter which he wants to bring before the House and it will only take a few minutes. It concerns the death of one of the ex-presidents and I am going to recognize him unless I hear to the contrary.

Dr. L. J. Picot, Littleton: I am not going to keep you but a moment. I am authorized by the family of the late Dr. George W. Long, one of our most beloved and honored members, to offer to you a portrait of him, to be presented by a committee from this Society, to the Hall of History in Raleigh, at such time as may be convenient for this committee and the family of Dr. Long. It is not necessary for me to say to you gentlemen who knew Dr. Long how much he deserves this honor.

I move, sir, that you appoint this committee at your leisure and make the announcement in proper form and order.

Motion seconded and carried.

Dr. Fletcher: The Secretary will make a record and appoint a committee later in order to confer with Dr. Picot and the family.

PRESIDENT'S MESSAGE TO HOUSE OF DELEGATES.

The next thing in order is the President's message. I shall not burden you with a message. I have no message in fact. You know the routine of this better than I. I want to say, however, that there was some motion introduced here last year which changed the invitation, the manner of inviting guests by the Society. There was a motion that the number of guests be limited to two, and we have endeavored to carry that out. Some resolution was passed by this body because many of them thought this was a North Carolina Society, and if a man had a message he wanted to bring to us, we wanted it. If he had something he wanted to advertise, we didn't want it. Consequently we have two distinguished visitors with us by invitation, and perhaps there will be others. You will notice that we have endeavored to carry out that policy of the House of Delegates.

The following report was submitted by the Secretary, Dr. Benjamin K. Hayes:

SECRETARY'S REPORT.

The Secretary desires to report that during this, his first year in office, he has formulated no definite policy regarding the work of the Society, but has conscientiously studied its needs in the light of its history. He has visited district meetings, conversed with leading members and corresponded with many of those who have carried the burden of the organization upon their shoulders for the past generation.

With a view of eliciting the personal interest of a larger number of men, the Secretary has introduced upon the program the name of one or more members who will open the discussion of each paper. The object of this is two-fold: first, it brings into prominence many men who would not voluntarily write or discuss papers; and, second, it is believed that the discussions are frequently of more interest than the papers, and by having a man appointed to discuss each paper, it insures a full discussion.

That an abundance of time may be provided for papers and discussions, it has been arranged to run two sections throughout the entire session. It is to be regretted that every member present cannot hear every paper and every discussion. This is impossible. The present arrangement is an experiment and not until it has been tried can we tell what the result will be.

(2) The date for the meeting having been placed two months earlier this year than usual, the members promising to write papers could not be prevailed upon to submit the names of their papers until the time for the meeting was practically upon us. As early as possible a tentative program was gotten out, and this was mailed to two thousand physicians in the State. The final program was not mailed, but will be given to the members present.

(3) The committee requested to revise Constitution and By-laws to date will be ready to report when the changes to be voted upon at this meeting have been settled. In other words, the constitution and by-laws, as amended to date, will appear in the Transactions for this year.

(4) The list of the legally qualified physicians in the State has not been completed. We have a completed list of those engaged in practice and we also have the list of those who have been registered by the Board of Medical Examiners. But there are a number of physicians in the State who were in practice before 1885 (the year that registration was first required) and who have never registered. The legal standing of these men does not seem to be clear. The secretary of the Board of

Medical Examiners has promised his coöperation in this matter and it is to be hoped that we will have a practically correct list of names in another year.

BENJ. K. HAYS,
Secretary.

Moved that report of the secretary be received. Motion seconded, and carried.

The report of the Treasurer, Dr. W. M. Jones, was read by him:

TREASURER'S REPORT.

JUNE 10 TO DECEMBER 31, 1915.

Balance as per report June 10, 1915	$1,536.38
Receipts June 10 to June 18, 1915. Dues	210.00
Total June 18, 1915	$1,746.38
Received from H. D. Walker, M. D., Treas. June 18	$1,746.38
Received from June 18 to December 31. Dues (1915)	40.00
Received from June 18 to December 31. Dues (1916)	24.00
Received from June 18 to December 31. Interest	34.15
Total December 31, 1915	$1,844.53
Disbursements, June 18 to December 31	1,820.92
January 1 to April 14, 1916. Balance	$ 23.61
Received dues	2,070.00
Received interest	.53
Total	$2,094.14
Disbursements	46.15
Balance April 14, 1916	$2,047.99

RECEIPTS

June 18, 1915 to December 31, 1915	$1,844.53
January 1, 1916 to April 14, 1916	2,070.53
Total	$3,915.06

DISBURSEMENTS.

June 18, 1915 to December 31, 1915	$1,820.92
January 1, 1916 to April 14, 1916	46.15
Total	$1,867.07
Total receipts	$3,915.06
Total disbursements	1,867.07
Balance April 14, 1916	$2,047.99

RECEIPTS ITEMIZED.

June 18 to December 31, 1915.

Report of H. D. Walker, M. D., Treasurer	$1,536.38
Alamance	$ 18.00
Alleghany	2.00
Caswell	2.00
Chatham	2.00
Columbus	2.00
Currituck	8.00
Davidson	2.00
Forsyth	4.00
Guilford	50.00
Halifax	8.00
Harnett	2.00
Hertford	2.00
Iredell and Alexander	20.00
Lenoir	2.00
Madison	22.00
Macon and Clay	2.00
Mecklenburg	12.00
Nash ($4.00, 1915; $24.00, 1916)	28.00
Pasquotank-Camden-Dare	4.00
Moore	2.00
Randolph	2.00
Richmond	8.00
Rockingham	2.00
Rowan	12.00
Wayne	10.00
Wake	44.00
Wilkes	2.00
Total	$ 274.00
June 10, 1915, report	$1,536.38
June 10 to December 31, Dues	274.00
June 10 to December 31, Interest	34.15
Total	$1,844.53

DISBURSEMENTS ITEMIZED.

June 18 to December 31, 1915.

1. H. D. Walker, M. D.	$ 22.50
2. M. K. Gilliam	28.40
3. J. A. Ferrell, M. D.	32.25
4. Miss Bessie Cahoon	5.00
5. Alpha Photo & Engraving Co.	3.75
6. J. B. Lippincott Co.	8.37
7. Jno. M. Hodges	3.20
8. Miss Mary Robinson	59.83

9. Miss Alice Glover	$ 48.28
10. Miss Emily Boyd	25.00
11. Miss Alice Glover	54.38
12. Miss Mary Robinson	89.90
13. M. K. Gilliam	38.50
14. J. B. Lippincott Co.	37.90
15. Miss Mary Robinson	30.52
16. E. M. Uzzell & Co.	12.91
17. E. M. Uzzell & Co.	1,280.43
18. Oxford Orphan Asylum	13.40
19. Lawrence E. Nichols	14.00
20. Harrison Printing Co.	12.40
Total	$1,820.92

JANUARY 1 TO APRIL 14, 1916.

1. Miss Mabel E. Ashley	$ 4.90
2. Benj. K. Hays	30.00
3. Oxford Orphan Asylum	9.25
4. Dr. G. A. Croome (dues returned)	2.00
Total	$ 46.15

DUES RECEIVED FROM JANUARY 1 TO APRIL 14, 1916.

Avery	$ 16.00
Alamance	22.00
Beaufort	28.00
Bertie	2.00
Bladen	12.00
Buncombe	130.00
Burke	28.00
Cabarrus	46.00
Caldwell	8.00
Carteret	18.00
Caswell	2.00
Catawba	26.00
Chatham	22.00
Cherokee	18.00
Chowan-Perquimans	2.00
Cleveland	24.00
Columbus	18.00
Craven	12.00
Currituck	6.00
Davidson	8.00
Davie	12.00
Duplin	14.00
Durham-Orange	78.00
Edgecombe	24.00
Forsyth	82.00
Franklin	22.00

Gaston	$ 48.00
Granville	32.00
Greene	12.00
Guilford	122.00
Halifax	30.00
Harnett	28.00
Haywood	24.00
Henderson-Polk	30.00
Iredell-Alexander	10.00
Johnston	30.00
Lenoir	22.00
Lincoln	22.00
McDowell	14.00
Macon-Clay	10.00
Martin	26.00
Mecklenburg	136.00
Mitchell	4.00
Montgomery	18.00
Moore-Lee	40.00
Nash	32.00
New Hanover	64.00
Northampton	18.00
Onslow	16.00
Pamlico	10.00
Pasquotank-Camden-Dare	36.00
Person	26.00
Pitt	16.00
Randolph	20.00
Richmond	26.00
Robeson	44.00
Rowan	38.00
Sampson	34.00
Scotland	22.00
Surry	36.00
Transylvania	14.00
Union	24.00
Vance	26.00
Wake	118.00
Washington-Tyrrell	20.00
Warren	12.00
Wayne	30.00
Wilkes	8.00
Wilson	42.00
Total	$2,070.00

Motion that report be accepted, seconded and carried.

Naming of the Finance Committee: Dr. Carl Reynolds, Chairman, Asheville; Dr. Jos. F. McKay, Buie's Creek; Dr. L. D. Wharton, Smith-

field. Dr. Oscar McMullan, Elizabeth City; Dr. D. A. Stanton, High Point, appointed to fill vacancies.

Dr. M. H. Fletcher: The following is the committee appointed to present the portrait of Dr. Long to the Hall of History in Raleigh. They can do that whenever the family and they desire.

Dr. L. J. Picot, Chairman; Dr. Hubert A. Royster, Dr. Richard H. Lewis, Dr. R. L. Payne (Monroe), Dr. George G. Thomas.

The report of the Committee on Efficiency was read and adopted Thursday morning, May 20.

REPORT OF COMMITTEE ON EFFICIENCY.

To the House of Delegates:

We, your committee appointed last year (see Transactions, 1915, page 383) to consider and report upon the advisability of arranging the meetings of the State Board of Health and those sections pertaining to public health so as to assure less confusion and greater efficiency, beg leave to report:

First. That we do *not* recommend that the Conjoint Session of the State Board of Health and the Medical Society be in any way disturbed.

Second. That in our humble judgment greater efficiency may be attained by having all those sections relating to public health hold their sessions on the same day the Conjoint Session is held.

Respectfully submitted,

J. W. Long, *Chairman.*
Cyrus Thompson.
Dan. E. Sevier.

The report of the Finance Committee was read before and adopted by the House of Delegates.

REPORT OF THE FINANCE COMMITTEE.

We, the undersigned, have examined the receipts and disbursements of your Treasurer, Dr. Wm. M. Jones, from June 18, 1915, to April 14, 1916, and find them to be correct and in balance.

This April 18, 1916.

C. V. Reynolds.
L. D. Wharton.

The report of the Committee on President's Address was read and adopted Thursday morning, May 20th.

REPORT OF COMMITTEE ON PRESIDENT'S ADDRESS.

Your committee to whom was referred the address of the President, have carefully considered the address in all its subject matter in detail. We heartily agree with the recommendations touching the establishment of community hospitals, but would not limit the establishment of these hospitals in a State as rural as North Carolina to towns of not less than 5,000 inhabitants; that is to say, that we believe the proper limitation for the establishment of such institutions has already been prescribed by law.

The committee does not believe that it is wise to criticize adversely private hospitals in North Carolina as institutions of a class; that if there are private hospitals in North Carolina subject to criticism, this criticism can be justly made only after adverse criticism by the local Medical Society or the State Board of Public Charities.

That it is the sentiment of the committee, and we believe that it is the sentiment of the Society, that the conjoint session of the State Board of Health and the North Carolina Medical Society shall be continued as heretofore, especially in view of the fact that the conjoint session at this meeting put itself on record by unanimous vote against any disturbance of these relations.

The committee does not think that either the State or any municipality in the State should levy a privilege tax on physicians, but in view of the fact that the tax levied by the State exempts physicians from tax by municipalities we do not think it wise at present to attempt to change this condition.

April 20, 1916.

Eugene B. Glenn.
Cyrus Thompson.
L. J. Picot.

REPORT OF COUNCILOR.

To the House of Delegates: April 18, 1916.

I have the honor to report to you as Councilor of the Second District that all of the counties in my district have good local societies except Jones, Bertie, and Hertford. There is no need of an organization in Jones for all the doctors in that county belong to the county society of the county most convenient to them. For that reason we will gain nothing by an organization in that county. Bertie and Hertford, I must confess, have caused me no little worry and seem to be hopeless cases. I have attempted repeatedly to revive these societies, but they seem well content to slumber undisturbed. At one time a personal letter

was written to each physician in these counties asking that they name a date on which I could pay them a visit and reorganize them. As yet the date has not been set and that was five years ago.

We have a very good District Society and are working on a plan which we feel sure will be of such benefit to the individual physician that not one can afford to be out of it. Our meetings are semi-annual and our last meeting was held at the Caswell Training School at Kinston. This was a most valuable meeting if for no more than to give the members an opportunity to get an insight into the workings of the school and see the great work that was being done.

K. P. B. Bonner.

REPORT OF COMMITTEE ON ADVISABILITY OF JOURNAL.

Durham, N. C., April 15, 1916.

To the House of Delegates:

Gentlemen:—At the last session of our State Society the Board of Councilors recommended to the House of Delegates that the President appoint a special committee to investigate the advisability of establishing a medical journal as the property and organ of the Society, the committee to report their findings and recommendations at the next meeting of the Society. This report was adopted, and the President appointed a committee consisting of Dr. J. W. Long, Dr. Chas. O'H. Laughinghouse, and Dr. J. Howell Way.

After due deliberation your committee finds that there are two essential factors in the successful publication of a medical journal. The first is the finances. From what our committee learns touching the expense of running a journal of this kind it fears that our State Medical Society is hardly in a position to finance so expensive an enterprise at this time. The second essential is to secure an editor who is competent of editing the scientific part of the journal and to look after the business part of the proposition at the same time. So far no one has applied for the job; therefore, your committee recommends that it is not expedient for the State Medical Society to attempt to establish a medical journal at this time.

Respectfully submitted,

J. W. Long, *Chairman.*
J. Howell Way.
Chas. O'H. Laughinghouse.

Report read by Dr. J. Howell Way and adopted.

The report of the Committee on Nominations was read before and adopted by the House of Delegates.

REPORT OF COMMITTEE ON NOMINATIONS.

President	Dr. Chas. O'H. Laughinghouse	Greenville
First Vice President	Dr. D. J. Hill	Lexington
Second Vice President	Dr. J. L. Spruill	Columbia
Third Vice President	Dr. J. H. Shuford	Hickory
Secretary	Dr. B. K. Hays	Oxford
Treasurer	Dr. W. M. Jones	Greensboro

For Board of Councilors

First District	Dr. W. H. Ward	Plymouth
Second District	Dr. K. P. B. Bonner	Morehead City
Third District	Dr. Ernest S. Bulluck	Wilmington
Fourth District	Dr. M. M. Saliba	Wilson
Fifth District	Dr. Ben Hackney	Bynum
Sixth District	Dr. A. C. Campbell	Raleigh
Seventh District	Dr. J. E. S. Davidson	Charlotte
Eighth District	Dr. J. W. Ring	Elkin
Ninth District	Dr. M. R. Adams	Statesville
Tenth District	Dr. C. V. Reynolds	Asheville

Next place of meeting: Asheville, N. C.

Time of meeting: Third Tuesday in April.

Delegates to The American Medical Association.—First: Dr. J. W. Long, Greensboro, N. C.; Second: Dr. W. L. Dunn, Asheville, N. C. *Alternates:* First: Dr. David T. Tayloe, Washington, N. C.; Second: Dr. D. A. Stanton, High Point, N. C.

Delegates to Virginia State Society—Dr. J. W. McGhee, Reidsville, N. C.; Dr. C. S. Lawrence, Winston, N. C.; Dr. L. J. Picot, Littleton, N. C.

Delegates to South Carolina State Medical Society—Dr. Fletcher R. Harris, Henderson, N. C.; Dr. A. B. Croom, Maxton, N. C.; Dr. M. H. Biggs, Rutherfordton, N. C.

Chairman of Committee of Arrangements—Dr. Charles L. Minor, Asheville, N. C.

Committee on Scientific Work—Dr. William deB. MacNider, Chapel Hill; Dr. William T. Carstarphen, Wake Forest; Dr. B. K. Hays, Oxford.

Committee on Public Policy and Legislation—Dr. J. M. Parrott, Kinston; Dr. J. M. Templeton, Cary; Dr. L. B. McBrayer, Santorium.

Committee on Publication—Dr. B. K. Hays, Oxford; Dr. Charles S. Mangum, Chapel Hilll; Dr. J. P. Monroe, Sanford.

Committee on Obituaries—Dr. A. W. Knox, Raleigh; Dr. E. G. Moore, Elm City; Dr. I. W. Faison, Charlotte.

Finance Committee—Dr. Carl Reynolds, Asheville; Dr. H. D. Walker, Elizabeth City; Dr. L. D. Wharton, Smithfield.

Amendments to Constitution were announced in order. Motion by Dr. Stewart, of Monroe, to take up consideration of amendments. Motion to amend by Dr. Martin to postpone consideration until tomorrow. Amendment carried.

Dr. Bonner reported for the council that they had voted to withdraw report of council in regard to Camden-Dare-Pasquotank Medical So-

ciety v. Dr. H. D. Walker and give the parties a new hearing, which was agreed to without objection.

Dr. M. H. Fletcher, Asheville: I know of no one to whom I would rather turn over the duties of my office than to my friend Dr. Laughinghouse. For six years I was associated with him on the Board of Medical Examiners and I know of no truer friend of the Medical Society of North Carolina than Dr. Laughinghouse, and it gives me pleasure to turn the gavel over to him.

Dr. C. O'H. Laughinghouse, Greenville: To put into words the genuineness and sincerity of my appreciation to this Society for the position which I now enter into is a thing impossible. It could not be expressed even by Dr. Thompson. I am deeply cognizant of my responsibility. I realize what it means. I realize, too, that the success of the coming administration depends upon the interest of each and every member of this organization plus my personal energy, interest, thoroughness, judgment, and common sense. Whether or not any other man fails in his duty will lessen not a whit the realization of mine own. I ask with earnestness your coöperation, your suggestions, your criticisms, and I ask that each and every member take his own immediate community and see to it that that community does its part toward making this administration just what it ought to be.

Dr. M. H. Fletcher, Asheville: We have been well entertained in this city and we would like for the records to show that we have appreciated what the good people of Durham have done for us. We have been entertained royally by the public institutions and by individuals here. I wish the records to show our thanks to Watts Hospital, to Trinity College and to the good people of Durham.

Dr. J. H. Way, Waynesville: I wish to second the motion of the President. I was going to make the same motion myself. I wish our thanks to be extended not only to Watts Hospital and Trinity College, but to the Durham-Orange County Medical Society and the newspapers of the city and private individuals as well, who have contributed their earnest and successful efforts.

Motion carried.

Proposed changes in Constitution and By-Laws having laid over from last year were taken up for consideration. On motion of Dr. Burrus, of High Point, it was moved that no change of Constitution be made at this meeting. Motion was carried.

Motion to adjourn.

CONJOINT SESSION

OF THE

STATE BOARD OF HEALTH AND THE STATE MEDICAL SOCIETY

The Conjoint Session was called to order by Dr. J. Howell Way, of Waynesville, President of the State Board of Health.

Dr. Way: Gentlemen of the Society, in calling the regular annual session of the Conjoint Session of the Medical Society of North Carolina and the State Board of Health to order, you will pardon me if I remind you that I do so not only as a member of this Society but as an official of the State of North Carolina, operating under a statute for which you are directly responsible. The State of North Carolina, gentlemen, is of all States in the Union, especially and signally, considerate and appreciative of the members of its medical profession in accepting their judgment, their wisdom and their power in naming a large portion of its Board of Health and in designating the whole membership of the State Board of Medical Examiners. In most of the States of the Union these boards are appointed by the Government. In this State the people repose that power in you because you have said you are an altruistic profession, you said you desired to promote public health, and you wanted it arranged in this way to help the people and to show the public that you desire to discharge fully your responsibility. A year or two since a committee of the Society divorced the meeting of the Board of Examiners from that of the body of the profession, by securing special legislation allowing them to meet at another time and place. It was suggested yesterday that a similar condition might take place in regard to the Conjoint Session. I have no criticisms to make of further performance if such thought and resultant action indicates the ripened, mature, sober and deliberate action of the medical profession of North Carolina. If it is simply a manifestation, a reflex of the growing spirit of nervousness, of desire to change, change, change, to make something new, to do something a little different from what it was yesterday, then I protest against such a manifestation of disturbed mentality, such a manifestation of hysteria. The public health work in North Carolina is peculiarly and particularly the work of the medical profession. In our persistent efforts in bygone years is the genesis of the great work. Shall we give it up? We dare not do so, but must con-

tinue to further develop it. If we are tired of this responsibility and seek to throw it off and thus publicly acknowledge that the prevention of disease and the discussion of papers relating thereto is not a part of our business, then I insist we are succumbing to the growing spirit of commercialism. Again, permit the suggestion that ten per cent of the medical men of North Carolina, if not now, will soon be actively engaged in public health work in North Carolina is a business proposition worthy of our thoughtful consideration.

The Conjoint Session will now come to order and we will proceed with the regular work.

ANNUAL REPORT OF THE SECRETARY OF THE STATE BOARD OF HEALTH.

W. S. Rankin, M.D., Secretary.

Messrs. Presidents and Members of the North Carolina State Board of Health and the North Carolina Medical Society:

INTRODUCTORY.

According to law and custom and in recognition of the interest of this society in its larger sphere of influence, I have the honor to present to you this report of the activities of the State Board of Health for the past year.

The society will recall the organization of the executive staff of the Board, its division into correlated departments or bureaus, to wit: the Executive Office, the State Laboratory of Hygiene, the Bureau of Engineering and Education, the Bureau of Vital Statistics, the Bureau of Tuberculosis and the Sanatorium, and the Bureau of Rural Sanitation. Before discussing the work of each department or bureau for the past year, it may not be out of place right here to say a word with reference to the correlated activities of these different divisions.

CORRELATED ACTIVITIES.

To illustrate: The Sanatorium by itself is capable of great accomplishments, but the Sanatorium supported and assisted by the influence and activities of the other executive divisions of the State Board of Health is capable of far greater accomplishments. On the other hand, the loss of the State Sanatorium to the State Board of Health would cripple the entire organization. And again, the Bureau of Vital Statistics could never have come into existence and could not now maintain itself without the public educational activities of the Board. On

the other hand, the Bureau of Education would be seriously handicapped without those fundamental facts obtained through the Bureau of Vital Statistics, upon which health work is based. And still again, the State Laboratory of Hygiene without the general influence of the other divisions of the work, could not have made the wonderful progress it has made during the past years. On the other hand, the other work of the Board would have been greatly impaired without the splendid support of the Laboratory. The full benefits derivable from typhoid vaccination depend upon the coöperation of three divisions: The production of vaccine by the Laboratory, the creation of a demand for vaccine or the popularization of typhoid vaccination by the Bureau of Education, and the provision for free public vaccination by the Bureau of Rural Sanitation. And so I might continue these illustrations, but I have said enough to make it clear that to the different division of the executive staff of the Board, the old adage, "United we stand; divided we fall," applies with full force. I pass now to the special work of the various divisions of the executive staff.

EXECUTIVE DEPARTMENT.

The work of this department may be divided into: (1) formulation of policies and provisions; (2) supervision, assistance, and conference with other divisions of the executive staff; (3) handling those matters of general concern that by their general nature can not be referred to those divisions responsible for special work; and (4) receiving and disbursing the funds for the work of the Board.

Policies and Provisions. 1. The unit system of county health work was devised and intended originally for those counties that could not afford, or would not afford, a whole-time county health officer. However, the present development of the unit system has now become so comprehensive in scope and so promising in results that it is applicable to 95 per cent of our counties. The fundamental principles of the unit system are (a) the division of the total county health problem into a number of independent parts or units of health work, (b) the State's attacking any one of the units of health work with its own agent or officer according to a definite plan previously agreed upon between the State and the county and for a definite sum appropriated by the county to the State, the sum being the minimum amount—usually a little less than actual cost—for which the State can undertake the unit of health work, and (c) the use by the State Board of Health of men especially trained and experienced in attacking each unit of county health work. As examples of the the unit system already in force, we may mention the

county unit of typhoid vaccination and the county unit of medical inspection of schools coupled with a plan of popular sanitary instruction of both school children and the public. Other units are now in process of development. In devising the unit system, the Executive Department has had the valuable assistance of the Bureau of Rural Sanitation, upon whom has fallen the far heavier burden of demonstrating the unit system in actual practice.

2. The Executive Office has been successful in interesting certain Federal agencies in undertaking valuable health work in North Carolina. (a) During the Summer of 1915, the United States Public Health Service carried through a campaign in Orange County directed against typhoid fever and soil pollution. Engaged in this campaign were from three to five men for their entire time during four and a half months. As a result, sanitary arrangements were improved in 35 per cent of the homes of that county. (b) We have succeeded in interesting the Federal Children's Bureau in our unit system of county health work, and that Bureau has undertaken, without cost to the State, a piece of work in Cumberland County directed to the development of a unit of infant hygiene work which will dovetail into our general scheme. (c) We have gained the consent of the United States Public Health Service to place one of their own officials in Edgecombe County as a whole time health officer for the purpose of working out and establishing, if possible, a model plan or system of county health work. The Federal government pays the salary of the officer so engaged, and Edgecombe County agrees to appropriate as much as $1,500 annually for the actual expenses of the work. The development of this model plan of county health work will require a full time Federal health officer for a period of several years.

3. The Executive Office, with Dr. Joseph Hyde Pratt, Chairman of the State Highway Commission, has prepared a plan with rules and regulations and obtained architectural designs and specifications for the sanitary and hygienic care of prisoners which has been pronounced by a high Federal official as, in many respects, the best general plan in this country.

4. The Executive Office is now at work on a policy for sanitary hotel regulation—a plan of hotel inspection with official grading and publication of the grades of the hotels of the State. This policy will take effect on and after the first of June, this year.

5. In coöperation with the State University, the Executive Office of the Board is now at work on a plan for direct assistance to the medical profession of the State in the way of post-graduate medical education brought easily within the financial and physical grasp of the aver-

age general practitioner, recognizing that anything that benefits the medical profession benefits the public health. If this plan, upon which we are now at work, and which has been endorsed, both as to its practicability and far-reaching service by national leaders in medical education, should materialize as it promises, it will be by far one of the most important pieces, if not the most important piece of work that the Board has yet attempted.

Supervision, Assistance, and Conferences with the different bureaus requires 20 to 35 per cent of the time of the Executive Office. Most of the time so used is given to those bureaus which have been more recently established or which are working under high pressure.

Matters of General Concern. There are many matters of a general nature reaching the office daily, which are not referable to any bureau or division. The correspondence of the Executive Office is the best index to the amount of this general work. The annual correspondence of the Executive Office is as follows:

Letters Received	3,400
Individual Letters Written	3,800
Multigraph Letters Written	1,000

Under this heading, too, may be included a number of addresses to different organizations, county, State, and national, professional and lay, which we find it impossible to avoid. These addresses aggregate in the year a total of 96, with a total audience of 10,000.

Receiving and Disbursing Funds. While the Executive Office is legally responsible as treasurer to the Board for the bookkeeping, this important duty is entrusted to Miss Mary Robinson. About one-half of the work of bookkeeping consists in the collection of water taxes and fees due to Laboratory of Hygiene. As an index to the amount of the work of the bookkeeper, I may mention the fact that the Board issues between 2,500 and 3,000 checks annually, and the correspondence of the bookkeeper amounts to from 1,500 to 1,800 letters a year.

THE STATE LABORATORY OF HYGIENE.

The work of the State Laboratory of Hygiene is divided into general examinations, production and distribution of biological products, and the administration of Pasteur treatments. The general examinations made by the Laboratory for the last 7 years are shown on the chart, the estimated general examinations for last year being shown by the line of figures in red. The distribution of biological products for the last 3 years is also shown in chart form. The number of Pasteur treatments given during the last 7 years is shown on a second chart. The slight de-

cline in the per cent of total examinations made last year is accounted for on two grounds: First, the large number of water analyses made during the year of 1914-'15, a total of 4,660 examinations as indicated on the chart, was exceptional and was due to certain special investigations being carried on by the Laboratory at the time. The total water analyses this year, 3,289, as compared with the number of examinations for 1913-'14, 2,988, represent the natural growth. Second, the development of the biological department of the Laboratory and the growing public demand for biological products, especially for typhoid vaccine, much more than make up for the slight decline in the number of general examinations made by the Laboratory.

I have heretofore referred to the administration of the Pasteur treatment of the Laboratory in terms of number of patients treated during the year. This is hardly fair to the Laboratory, as it does not represent the amount of work of this kind to those who are not familiar with the fact that a complete Pasteur treatment requires 25 hypodermic injections of anti-rabic vaccine for each patient. For this reason, I am showing on the chart the number of doses of anti-rabic vaccine administered to patients during the last year, and also for the last 7 years.

STATE LABORATORY OF HYGIENE.

GENERAL EXAMINATIONS.

Years	Water	Sputa	Widal	Para-typhoid	Diphtheria	Rabies	Malaria	Urine	Gonococci	Pathological	Miscellaneous	Totals	Growth—Percent
1909-1910	1,680	516	264	.....	377	148	69	92	34	88	25	3,293	61.
1910-1911	1,920	771	460	.....	364	159	119	58	52	39	20	3,962	20.3
1911-1912	2,449	924	732	.....	547	199	132	92	48	38	41	5,202	31.
1912-1913	2,183	1,091	790	.....	660	298	196	83	78	39	28	5,444	4.6
1913-1914	2,988	1,473	1,094	.....	593	371	292	133	92	28	24	7,088	30.
1914-1915	4,669	1,605	1,382	...	896	297	340	177	105	73	50	9,594	35.
1915-1916	3,289	1,694	1,392	167	1,358	279	268	152	94	58	60	8,811	—8.1

DISTRIBUTION BIOLOGICAL PRODUCTS.

Years	Diphtheria Antitoxin	Typhoid Vaccine	Smallpox Vaccine
1913-1914	9,254,000	30,000	.....
1914-1915	11,006,000	137,211	.....
1915-1916	12,385,200	456,180	5,261

DOSES ANTI-RABIC VACCINE ADMINISTERED.

Years	Doses
1909-1910	3,950
1910-1911	4,125
1911-1912	4,875
1912-1913	6,475
1913-1914	5,775
1914-1915	4,825
1915-1916	4,375

The State Laboratory of Hygiene is now engaged in the execution of plans which, within another year, will greatly extend the usefulness of this important division of the State's health work.

THE BUREAU OF ENGINEERING AND EDUCATION.

As the name of the Bureau suggests, the work of this division may be divided into two parts: Educational and Engineering.

Education. The educational work of the State Board of Health is carried on through the following agencies: the *Bulletin,* special pamphlets on sanitary and hygienic subjects, a daily press service, stock lectures, traveling exhibit, and a moving picture outfit.

The Bulletin has been cut within recent years from a 32-page pamphlet to a 24-page pamphlet, and within the last month to a 16-page pamphlet, in order to keep within the State's allowance for printing, and by this process of attenuation to extend the circulation to its ever-growing family of readers, which at present numbers 51,500.

Special Pamphlets on the following subjects are in stock for distribution:

Tuberculosis	Cancer	Adenoids
Typhoid	Malaria	Measles
Flies	Health Catechism	Diphtheria
Privy	Health Laws	Disinfection
Baby	Weak Eyes	Scarlet Fever

Residential Sewage Disposal Plants

During the past year, the Board of Health, upon the request of the citizens of the State, have distributed these special pamphlets as follows:

Tuberculosis	65,000
Typhoid	65,000
Flies	59,000
Privy	61,000
Baby	60,000

Cancer	20,000
Malaria	20,000
Health Catechism	17,000
Health Laws	2,000
Weak Eyes	1,600
Adenoids	2,000
Measles	3,000
Diptheria	3,000
Disinfection	3,000
Scarlet Fever	3,000
Fly Placard	4,000
Typhoid Placard	4,000
Tuberculosis Placard	3,000
Don't Spit Placard	1,000
Residence Sewage Disposal	2,000

The recent exhaustion of our printing fund, which made it necessary to cut the *Bulletin* a third in size and make special arrangements for its publication with the State Printer, will make it necessary also for us to make special provision for a supply of pamphlets on the more important diseases, as we are continually receiving requests for the information that these pamphlets contain. Fortunately for us, the Metropolitan Life Insurance Company has agreed, if the State can not, or will not supply this material for its citizens, to furnish an adequate supply of their pamphlets. With eminent sanitary authorities and expert editorial assistance for the preparation of their pamphlets on sanitation and hygiene, the Metropolitan pamphlets are both authoritative and readable. We have come to a pretty pass when a great State either can not or will not supply its citizens with the sanitary and hygienic information which they request, and when this important duty of the State has to be left undischarged or be assumed by a benevolent corporation.

The Press Service consists in sending out to the newspapers of the State a daily article of from 200 to 300 words, about two-thirds of a column. The material sent out may be divided into three kinds: (1) That which has news value but no value in teaching sanitation and hygiene; (2) that which has both news value and value in teaching sanitation and hygiene; and (3) that which has no news value but which teaches sanitation and hygiene. The newspapers are more than generous in the use they make of this material, but I think I am correct in saying that the amount of the material used is in the order of the above classification. This is, however, not the fault of the newspapers so much as it is the demand of the people. The public is more interested in reading of the spectacular than of the every day occurrences, more interested in a murder than in a death from typhoid fever or tuber-

culosis, more interested in news than in doctrine. Those newspapers that are using the material prepared almost solely for its sanitary and hygienic value, such as is prepared by Dr. W. A. Evans of Chicago, Dr. Wm. A. Brady, and Dr. Leonard Hirshberg, are accomplishing far more in the conservation of health, in the saving of human life, than are those papers that neglect this class of material and only select for their use material that has news value or is of a spectacular nature. Here is where the press service of the North Carolina State Board of Health is capable of considerable improvement. If arrangements can be made with the larger daily papers of the State for regular space for an article by the State Board of Health, such as some papers set aside for the articles by Doctors Evans, Brady, and Hirshberg, and which these papers pay for, a distinct step in advance would be made. I hope before the report of another year that this idea can be put into execution. Still another important improvement in the press service that is contemplated is to furnish regular weekly material in plate form to the 50 or 75 weekly papers of the State. There will be no question about this material being used just as it is sent out, and the weekly paper is the only publication that reaches many of the homes of just that class of people who will read and are most in need of this kind of literature.

Stock Lectures. These stock lectures consist of a set of slides properly arranged, a skeleton lecture, and a portable lantern outfit that can be sent anywhere in the State, either by express or parcel post, to be used by any fairly intelligent person in addresses before schools, Y. M. C. A.'s, and civic organizations. There are about 300 of these stock lectures given a year, or about 25 a month.

The Traveling Exhibit has been shown in the following places during the past year:

Mayodan
Albemarle
Asheboro
Concord
Durham
Salisbury
Winston-Salem
Gastonia
Raleigh (Fair)
Tarboro
Panama-Pacific Exposition
Kinston
Wilmington
Greenville
Brunswick, Ga.
Spray
Nashville
Cliffside
Fayetteville
Raleigh Teacher's Assembly

It is estimated that 25,000 people have seen the exhibit. The principal object of the health exhibit is to build up and extend the general interest in human conservation.

The Moving Picture Outfit is the latest addition to the educational agencies of the Board. This outfit when complete will consist of an automobile delivery truck that will carry a lecturer, a machinist, a small gasoline engine-generator set to generate electricity, a moving picture machine and the best available films on sanitation and hygiene. This outfit can be taken into any country school house miles away from an electrical current, the house lighted with electricity and a moving picture health show given. The idea is to make the outfit as nearly self-supporting as possible by charging enough admission to pay a lecturer and the cost of the up-keep. This outfit, when operated continuously, giving a show every night in the year, will cost somewhere between $3,500 and $4,000 a year. The Bureau of Education is now at work on this outfit trying to make the equipment so complete, the pictures so instructive and entertaining as to make the whole thing self-supporting —to make one audience pay the transportation and cost of the outfit to the next audience.

Relative Values of the Educational Agencies. This may be judged by the relative size of the audiences reached and by the class of people that compose the audience; with this understanding, however, that in the audience of a publication as in the audiences of a speaker, there are many who have ears that hear not,—the relatively few are reached with an idea or an impression. The total annual audience of the *Bulletin*, with its 51,500 circulation per month, is 600,000 people. A daily press service of the Evans, Brady, or Hirshberg class of material carried regularly in only two or three of our larger dailies would have a total annual audience each year of 6,000,000. The stock lectures with an average audience of 50, and 300 such audiences a year, would reach 15,000 people. It is estimated that the traveling exhibit is seen by 25,000 people each year. The moving picture outfit, such as is now in process of development, given 300 times a year to an average audience of 200, would reach 60,000 people a year. Without discussing in detail other factors to be considered in judging of the relative values of educational agencies in State health work, I think we will be safe in giving value to these various agencies in proportion to the size of the audiences reached.

Correspondence. The correspondence of the Bureau of Engineering and Education is each year:

Pieces of mail received	18,000
Individual Letters Written	4,000
Multigraph Letters Written	5,000

Engineering Work. For the last year 8 sets of plans and specifications for water works have been received and approved or are pending;

16 plans and specifications for sewage disposal have been received and approved or are pending; and 125 inspectors' reports of watersheds have been received and examined.

THE BUREAU OF VITAL STATISTICS.

The work of this Bureau lends itself easily to numerical expression, and we take this form of showing the results of the work for the last year in three charts showing death rates by counties, birth rates by counties, and a chart showing the total number of births and deaths and the birth and death rates by months. Probably the best index to the amount of work that these facts represent can be shown in the statement of the clerical work necessary to secure, classify, and tabulate the vital statistics of the State. This Bureau receives yearly, in addition to the birth and death certificates received as shown in the tables, 12,260 letters and postals, 6,000 undertakers' reports, issues 250 commissions to local registrars, mails out 15,196 packages of supplies, writes 17,007 individual letters, and 42,001 multigraph letters.

ANNUAL DEATH RATE FOR THE YEAR 1915.

Alamance	11.8	Dare	11.4
Alleghany	9.2	Davidson	13.1
Alexander	13.	Davie	12.6
Anson	11.	Duplin	11.4
Ashe	10.6	Durham	16.
Avery	10.9	Edgecombe	18.7
Beaufort	14.8	Forsyth	16.3
Bertie	12.6	Franklin	14.3
Bladen	15.2	Gaston	11.6
Brunswick	10.4	Gates	11.2
Buncombe	15.5	Graham	9.8
Burke	15.6	Granville	13.1
Cabarrus	15.2	Greene	15.1
Caldwell	10.2	Guilford	13.1
Camden	13.2	Halifax	14.2
Carteret	11.	Harnett	11.
Caswell	13.5	Haywood	10.9
Catawba	10.4	Henderson	13.6
Chatham	11.3	Hertford	13.5
Cherokee	8.3	Hoke	11.9
Chowan	16.1	Hyde	13.3
Clay	13.3	Iredell	11.9
Cleveland	10.2	Jackson	9.4
Columbus	13.3	Johnson	11.7
Craven	17.	Jones	10.5
Cumberland	15.9	Lee	14.6
Currituck	19.9	Lenoir	14.6

Lincoln	11.	Robeson	12.4
McDowell	13.	Rockingham	11.7
Macon	11.8	Rowan	13.5
Madison	11.8	Rutherford	10.5
Martin	15.9	Sampson	15.4
Mecklenburg	14.7	Scotland	15.4
Mitchell	13.4	Stanly	10.3
Montgomery	11.	Stokes	9.7
Moore	10.1	Surry	12.2
Nash	10.5	Swain	8.8
New Hanover	21.	Transylvania	16.4
Northampton	14.2	Tyrrell	15.3
Onslow	10.7	Union	8.5
Orange	14.6	Vance	15.9
Pamlico	10.2	Wake	17.1
Pasquotank	15.6	Warren	14.2
Pender	12.	Washington	15.
Perquimans	14.1	Watauga	8.1
Person	11.6	Wayne	19.2
Pitt	12.6	Wilkes	11.8
Polk	17.5	Wilson	17.7
Randolph	11.3	Yadkin	11.8
Richmond	14.7	Yancey	8.8

ANNUAL BIRTH RATE FOR THE YEAR 1915.

Alamance	24.9	Cumberland	22.6
Alexander	39.1	Currituck	27.6
Alleghany	26.5	Dare	34.1
Anson	34.4	Davidson	34.1
Ashe	36.3	Davie	29.
Avery	45.6	Duplin	27.8
Beaufort	32.7	Durham	23.1
Bertie	31.2	Edgecombe	30.6
Bladen	39.8	Forsyth	30.
Brunswick	32.2	Franklin	34.1
Buncombe	27.1	Gaston	30.7
Burke	28.1	Gates	39.3
Cabarrus	33.4	Graham	34.8
Caldwell	34.4	Granville	25.5
Camden	23.2	Greene	41.2
Carteret	30.9	Guilford	26.9
Caswell	31.8	Halifax	30.3
Catawba	32.5	Harnett	30.1
Chatham	29.5	Haywood	36.
Cherokee	35.2	Henderson	33.8
Chowan	32.6	Hertford	28.5
Clay	46.5	Hoke	31.1
Cleveland	34.4	Hyde	29.5
Columbus	34.5	Iredell	30.7
Craven	28.8	Jackson	32.1

Johnston	35.7	Randolph	31.3
Jones	30.5	Richmond	28.
Lee	32.7	Robeson	29.4
Lenoir	28.7	Rockingham	31.1
Lincoln	36.4	Rowan	29.6
Macon	36.3	Rutherford	30.4
Madison	38.6	Sampson	36.2
Martin	41.	Scotland	35.2
McDowell	38.5	Stanly	34.8
Mecklenburg	24.6	Stokes	39.
Mitchell	40.7	Surry	35.2
Montgomery	33.3	Swain	35.
Moore	27.	Transylvania	36.8
Nash	28.5	Tyrrell	39.8
New Hanover	29.9	Union	30.2
Northampton	29.6	Vance	30.8
Onslow	28.2	Wake	30.7
Orange	35.4	Warren	39.
Pamlico	29.8	Washington	36.9
Pasquotank	29.4	Watauga	35.8
Pender	29.3	Wayne	31.8
Perquimans	29.3	Wilkes	39.5
Person	35.6	Wilson	34.7
Pitt	36.8	Yadkin	32.5
Polk	32.4	Yancey	46.4

Births and Deaths (Exclusive of Stillbirths) Occurring During 1915, by Months of Occurrence.

Month.	*Deaths.*	*Rate.*	*Births.*	*Rate.*
January	2,682	13.5	5,856	29.6
February	2,518	12.7	5,390	27.2
March	3,057	15.4	5,890	29.8
April	2,750	13.9	7,069	35.7
May	2,630	13.3	7,310	36.9
June	3,050	15.4	6,082	30.7
July	2,893	14.6	6,416	32.4
August	2,689	13.6	6,561	33.2
September	2,124	10.6	7,180	36.3
October	2,423	12.2	6,283	31.7
November	2,398	12.1	5,462	27.6
December	2,431	12.3	5,424	27.4
Total	31,645	13.3	74,923	31.5

I am glad to report that the Federal Government recently, after one of the most searching examinations ever applied to the work of any vital statistical division of a State Government, admitted North Carolina to the Registration Area of the Union, we being the third State in the South admitted, Virginia and Kentucky being the other States al-

ready in the area. Still more encouraging is the fact that our State was admitted with a death rate of 13.3, which is less than the average death rate of the Registration Area, and which is the lowest death rate of any of the original thirteen States, or probably the lowest death rate of any State with our age and race distribution. Our death rate is slightly lower than that of Virginia and considerably lower than the death rate of South Carolina, our neighbors on the North and South. Not only have we one of the lowest death rates in the Union, but we have the highest birth rate of any State that I know of, and higher than that of any European country, Holland, with its birth rate of 31, not excepted. Our high birth rate of 31.5 per 1,000 population, giving us a proportionately large infant population with its high mortality, makes our low death rate all the more remarkable. We believe that the vital statistics law in establishing this one fact, to wit, that North Carolina is as healthy as the average State in the Union, and, considering her age and race distribution and high birth rate, one of the healthiest States of the Union, is worth all the cost, not to mention the sanitary and legal values of the law.

THE BUREAU OF TUBERCULOSIS AND THE SANATORIUM.

The work of this division of the board may be divided into the work of the Sanatorium proper, or the internal work, and the work of the Bureau of Tuberculosis, or the external work of the institution. The figures in regard to the work of the Sanatorium and the Bureau of Tuberculosis contained in this report are estimates based upon a system of monthly reports that have been in force since the first of January.

The Sanatorium, as indicated in the reports of the last three months of its work, is admitting between 200 and 250 patients a year, and this number will be increased to 350 or 400 a year by the recent opening of the new building. The patients being admitted at present are 25 per cent incipient, 43 per cent moderately advanced, and 32 per cent far advanced. The patients as discharged are 24 per cent arrested, 9 per cent apparently arrested, 28 per cent quiescent, 30 per cent improved, 4.5 per cent unimproved, and 4.5 per cent deceased. At the present rate, the Sanatorium is examining about 310 outside patients each year.

The Work of the Bureau of Tuberculosis, which is the external work of the institution, consists in (a) securing the reports of cases of tuberculosis, (b) writing the cases of tuberculosis reported and furnishing these cases suitable literature for their guidance, (c) furnishing sputa cups to those desiring them, and (d) interesting physicians and assisting them in diagnosis of tuberculosis through regular letters and free von Pirquet tests. For the past three months 1,016 cases of tubercu-

losis have been reported, which would give us a yearly estimate of 4,064 cases, which is somewhere in the neighborhood of 33⅓ per cent of the actual number of cases in the State. The Sanatorium has written letters transmitting suitable literature to 849 of the 1,016 cases reported. The Bureau of Tuberculosis is supplying about 50,000 sputa cups a year to the people of the State at actual minimum wholesale cost.

Recently the Sanatorium has arranged with the public health nursing service of the Metropolitan Life Insurance Company a plan of supervisory and coördinated nursing service for the State which promises to develop into one of the most effective divisions of the work of this Bureau.

In addition to the work already mentioned, the Sanatorium is doing a great deal of educational work through the preparation, publication, and distribution of newspaper and Bulletin articles and special pamphlets. The correspondence of the Sanitorium and the Bureau of Tuberculosis amounts annually to 13,000 individual letters and 50,000 multigraph letters.

THE BUREAU OF RURAL SANITATION.

The object of this Bureau is to see that ways and means for the development of rural or county sanitation are provided. The Bureau seeks to do this in two ways: One, by such assistance to county health officers and county physicians as the demand from these officials coupled with the means of the Bureau will permit. Two, the extension of the unit system of county health work.

Assistance to County Officials. Since our last report, one other county, Davidson, has joined the group of whole time health officer counties, making now eleven such counties in the State. We are justified in including Edgecombe County in this group. The United States Public Health Service will soon place one of their own officials in Edgecombe for the purpose of developing some plan or system of county health work applicable to the average county. At this time, the development of a definite plan of county health work is the all important need of the whole time county health officer idea. If such a plan of county health work can be established by the work in Edgecombe, it will be known as the "Model Plan of County Health Work of the United States Public Service," and of any State that cares to adopt it.

The Unit System. Since our last meeting, the Bureau of Rural Sanitation, under the unit system for free typhoid vaccination, has carried out this unit in the counties of Wake, Northampton, Henderson, Buncombe, Cumberland, Wilson, Halifax, Edgecombe, Wayne, Warren, Craven, and Iredell, giving 52,000 people the complete vaccination and

in addition, doing a great deal of educational work through talks, exhibits, and the distribution of health literature. In 1914 the 12 counties mentioned had a total of 175 deaths from typhoid fever. In 1915, in the same 12 counties, notwithstanding the fact that this campaign was carried on in these counties, beginning about June 1, and continuing until about December 1, there were 132 deaths from typhoid fever, a decrease of 45 deaths. The 12 counties appropriated $6,500 for this work.

During the Winter and Spring months, the Bureau of Rural Sanitation has carried out the unit for medical inspection of schools in 3 counties: Northampton, Wilson, and Alamance. In this work 10,108 children have been examined for the common defects of their age, and 3,250 have been found defective. The names of these children, with their parents, have been card indexed in Raleigh, and 2,410 letters have been written already to their parents, teachers, and doctors, urging the necessary treatment for the various defects found. Along with the inspection work, 222 lectures on sanitary and hygenic subjects have been given, 122 of them being illustrated, to 18,673 people. In addition to this educational work that has gone along with the medical inspection of schools, the children in the schools have studied and been quizzed upon the catechism on the prevention of diseases, and have prepared compositions on sanitary and hygienic subjects. Of the two phases of the work of the school unit, it is difficult to say which is the most important, that which seeks to find and have treated the defects of school age, or that which seeks to educate in sanitary and hygenic principles, both the children and the grown people of the school communities. The three counties that adopted the medical inspection of schools unit appropriated a total of $1,400 for this work. Five counties have already made appropriations for the typhoid vaccination campaign this summer, and one county has already adopted a medical inspection of schools unit for next Fall. In addition to the work which the Bureau has already agreed to undertake, other units of health work are now in process of development, and of these units you will hear later.

IN CONCLUSION.

The work of the State Board of Health has developed in extent and variety until it is no longer possible for a report of the work to be made in brief form without the sacrifice of many important details. Probably the best general statement that I can make in regard to the work of the State Board of Health is to say that a very thorough survey of the work of the State Boards of Health of the Union, made under the supervision and direction of the American Medical Association and

made by an eminent expert in sanitation and hygiene, gives North Carolina the highest rate of efficiency in State health work of any of the Southern States.

DISCUSSION.

Dr. J. H. Way: I would be pleased to have him answer any questions that any of the gentlemen desire to ask and also have the gentlemen discuss in general any particular feature or in general.

Dr. R. H. Lewis, Raleigh: As one who has not lost his interest and as he hopes he never will lose interest in public health matters, I want to express to our President, to our Secretary, and to you all, the pride and satisfaction with which I have heard the report of the Secretary of the work that has been done by him and his collaborators.

It is my pleasure to call Dr. Rankin my "sanitary foster son," and you will see he has far outstripped his daddy. It is the greatest satisfaction to me to know the work that he has done.

I want to emphasize another fact, that is the original idea of Dr. Rankin of bringing the post graduate instruction to our physicians instead of requiring them to go to the expense of a trip to the North and leaving their practice unprotected. It is pioneer and fraught with the greatest good to the State.

It is with pain that I heard our President, for whom I have the highest esteem and in whose judgment I have the greatest confidence; it was with positive pain, I heard him speak of the separation of the Society and the Board of Health. There is one single practical point that I want to make. We are unique in this country, as far as I know, in that the medical profession has some control over the Board of Health and the Board of Medical Examiners. Just as sure as you live, if we separate the Board of Health from the Medical Society, the State will take away from us the privilege of electing four members of the Board, and thereby prevent its being made a political organization. Such a movement would destroy that relationship and the Board of Health would finally become a political organization, and it is not necessary to argue the disadvantages of that. It would be a great mistake, gentlemen, and I hope you will bear that in mind. I suppose it will be referred to the House of Delegates. Consequently, we will have no opportunity to say anything about it. Why separate them? Don't you think it would be nothing but right and proper to allow papers on the subject of public health to be presented to the general body of the Medical Society of North Carolina? Do you propose to cut them out entirely? If you don't, what is the objection to having these papers read in a conjoint session of the Board of Health and the State Medical

Society of North Carolina, which Association makes an impression on the people and on the Legislature?

Dr. J. T. Burrus, High Point: I hope you will pardon me for taking any part of your time just here, but I feel that it is of such vital importance that I cannot refrain from saying just a word.

Such complete statistical reports as we have here before us this morning teach me and tell me that it is possible to carry this complete report to any extent. Dr. Rankin has shown us conclusively that we can know what the death rate of North Carolina is, and that we may know what diseases are producing this death rate, tells us that we may know what the birth rate of North Carolina is, and that we are knowing. Not only does it tell to me the importance of the birth and the death rate of North Carolina, which seems to me should be known to every physician in North Carolina, whether he is a surgeon, whether he is an internist, or whatever specialty he may choose to follow, whether I may be a surgeon or an internist, it is my privilege and my duty to know the maladies that my people are heir to, and I want to say just here that there is no more important hour of the Medical Society of North Carolina than the hour when the medical profession of North Carolina can meet here in conjunction with the State Board of Health, and we demand the right to meet in conjunction with this State Board of Health, and we ask for the liberty of getting up and contributing whatever we may in conjunction with this State Board of Health for the betterment of our citizenship.

Again, Mr. Chairman, this has proven to me in connection with Dr. Rankin's idea of post graduate work, that we can make post graduate work for ourselves. How? Tells me that I may keep a tabulated record of every case that comes to me. It tells me that I may keep constantly before me a systematic way of returning and referring to the cases that I have had in the past. Experience is worth a great deal, and it is a great school. It is a school that ofttimes costs us very dearly, but if we would get the most from our experience, then we must keep our observation constantly before our mind. To do that we have got to keep a systematic record of our cases, and I can see because of this systematic reporting of conditions in North Carolina that the physicians all over North Carolina are beginning, one by one, section by section, to take up this idea of post graduate work, and they are keeping a close tab on their cases, and I hope, Dr. Rankin, right along this line, sir, that you will go along with the same diligence that you have in the past and that you may take up even this side of this important question.

I want to say in conclusion, that I hope the day will never come

when the medical profession of North Carolina may not have the privilege of assembling in conjunction with the State Board of Health and discussing the vital issues pertaining to the health of our Commonwealth.

Dr G. T. Sikes, Grissom: As a member of the household I would like to say one word right here, and that is, we are proud of our daughter. She has done well. We are not in a position to let her be divorced, and we are not going to do it. She is a member of the same family and we are proud to have her annually return to dine with us one day in the year. Come home, we are glad to receive you. And if it should be that some of the children of the household may become a little bit wearied and wish to dine by themselves, we are already running two dining rooms, and we can dine with this daughter. Come in and we will welcome you and have the fatted calf ready for you.

Dr. C. L. Minor: I heartily agree with Dr. Lewis. I think it would be very unfortunate if this union of the Medical Society and the Board of Health were to be terminated. The doctors of this State should take an interest in the Board of Health, and should have some small control of it, if possible, and the relation between us gives us some such control.

We are unusually fortunate in this State in having Dr. Rankin as our Health Officer. His work is known way beyond the State and does him and the State credit.

Dr. A. E. Bell, Mooresville: I think the doctors would be desirous that Dr. Rankin give us some idea with regard to the post graduate course.

Dr. J. H. Way: I was going to ask him in closing to make special discussion of that feature.

Dr. W. S. Rankin: The post graduate plan, which Dr. Lewis asked me to describe to you briefly, consists fundamentally in moving one man, the teacher, to the class of post graduate physicians instead of moving the class of post graduates, 50 or 60 men, to the instructor or teacher.

It can be shown by the records of post graduate schools and medical colleges in this country, and can be estabished by the testimony of men like Dr. N. P. Colwell, Secretary of the Council of Medical Education of the American Medical Association, that the amount of post graduate work done by the average general practitioner in this country is so small as to be without perceptible influence on the medical profession as a whole. Note I say the post graduate work by the *average general*

practitioner, not by the surgeon or the specialist in eye, ear, nose, and throat, in skin disease, in genito-urinary diseases, etc.

The reason that the general practitioner doesn't take post graduate work is not that he doesn't appreciate it or doesn't want it; it is because he can't get it. And the reason he can't get it is expense, or money. The income of the general practitioner in this country ranges from $1,000 to $1,800 a year. Now we will take the maximum figure as his income. For him to go off six weeks means that he loses $225 in income. If he pays $100 for his course—and if he gets the right kind of course he will pay this much—that means $325 expense. If we add $75 for railroad fare, hotel bills, and incidentals, the minimum cost of the post graduate course will be $400. If 60 men should leave their practice and go off for a post graudate course at this figure, the total amount is $24,000.

Instead of moving the 60 men at a cost of $24,000, we will group the 60 men into 6 sections, averaging 10 each, in 6 different counties and towns conveniently located with reference to traveling. We will assess the 60 men $33⅓ apiece, which will give us a fund of $2,000, and with that we will employ our instructor and bring him to the men. The instructor will meet the 6 sections of his class on the 6 days of the week, Section A Monday, Section B on Tuesday, Section C on Wednesday, etc. A section meeting will consist of 3 hours work: the first hour will be lectures—a course of lectures worked out by the very best men engaged in medical education. Following this hour there will be a two hour clinic on patients brought in by members of the class from their practice, and if more patients are needed, a public dispensary may be opened and run in connection with the class. In a course of 17 weeks, each section would, according to this scheme, receive 17 lectures and 34 hours of clinics, a total of 51 hours work.

The class of men available for the positions of instructors or teachers are the younger teachers, instructors and associate professors in our larger medical schools, men who have had from 3 to 5 years special training and experience in the subject which they teach.

The University of North Carolina has consented to become responsible for inaugurating this scheme of post graduate medicine. The University as an agency is the educational head of the State. It has fellowship with the universities of the country, and, in that way, is in a position to get the best of teachers. The University as an educational institution can, when the men in the class come up to certain requirements in promptness and attendance on lectures, give academic credits, that is, credit the members of the class with a certain number of hours of work just as they give credit to the intra-mural students.

This plan of post graduate work has been submitted to many of the leaders of medical education in this country. These men are intensely interested in its development and believe that it has great possibilities. There are many things that I could say about this plan of post graduate work, but the hour is late and I shall leave the untouched phases of the problem to your own fruitful imagination.

Dr. C. L. Minor, Asheville: I move this body give a rising vote of thanks to Dr. Rankin for his brilliant idea.

Dr. Rankin: One thing I want to mention is this. This is not my idea. I have been working on it because I have been placed in a position affording opportunity to work on it. Dr. Benj. Hays is responsible for some of the fundamental parts, Dr. Lewis and Dr. Graham and many others, but it is not my idea. It is a combination of ideas that various men have contributed.

Dr. Minor: Genius is a combining of many men into a unit whole. I still think the doctor deserves a vote of thanks.

Dr. J. Allison Hodges: As a former member of the Board of Health of this State, I have always taken a great deal of pleasure and pride in the initiative as well as in the active work of this Board, and I am simply rising now, not to add more flowers to the tributes that have already been paid to the Board, but simply to say to you that just praise should always be valued, especially from friends. Only yesterday, seated in the office of the Board of Health of another State, it was my pleasure to hear, and it was my pleasure to add to the compliments that were paid the progressive Board of Health of North Carolina before a meeting of gentlemen assembled from several States, and I wish you to know that your work here is not confined simply to the limits of your State, but that other men, working prominently for the best interests of the profession, have their eyes on you, and already this matter of post graduate education has gone abroad and North Carolina is getting its praise for this progressive work. I wish you to know this, because I feel that it is nothing but a just tribute, and personally, I have faith in you which I know is going to be realized.

In conclusion, I wish to say that North Carolina is taking a foremost place in the work of vital registration and in the work of the unit idea in health matters that is going to give it a wider publicity and a greater opportunity for doing good work than she has ever had before. The United States is going to give credit where credit is due, and it is certainly due this progressive Board, and I take pleasure in assuring you

of my confidence, and the confident anticipation that the present will be but the beginning of that which is to come to you and to your State. (Applause.)

Dr. Cyrus Thompson: Already, sir, we have pretty clearly the sentiment of this conjoint body on one particular matter, and I think, sir, that it would not be amiss if we test the sentiment of the joint session upon a motion. I, therefore, move that this body declare that it is the wish of the joint session that the meetings of the State Medical Society conjointly with the State Board of Health should hereafter forever continue just as they have been in the past.

Dr. C. L. Minor: I might ask for the removal of the word "forever."

Dr. Thompson: I will accept that. It is a minor matter. There are some men who always like to amend everything. I knew a man in the Senate of North Carolina once much given to amending, and some man a little petulantly remarked that the Senator would move an amendment to the Psalms of David, if they were offered for adoption; and he said, "I would. I would move to strike out the word 'Selah' wherever it occurs." I will strike out the word "forever," and simply will say that they continue.

Dr. J. Howell Way: On behalf of the Board, I thank you very much for your presence and participation and trust that the work of the Board will continue to interest you, making our reports just as briefly as possible and keeping our work up to the highest possible pitch, and trying to have something to interest you and to evidence plainly each year to the people of North Carolina that her men of medicine are profoundly concerned in the great work of constantly promoting higher health standards.

REPORT

OF THE

BOARD OF MEDICAL EXAMINERS

OF THE

STATE OF NORTH CAROLINA

ANNUAL SESSION, RALEIGH, N. C., JUNE 26-30, 1916.

There were:

148 registrations for examinations.
18 failed to pass the examinations.
4 obtained limited licenses.
96 passed successful examinations.
17 obtained licenses by reciprocity.
34 students took examinations on first two years work.
32 made the required average.
2 failed to make the required average.

H. A. Royster,
Secretary.

Raleigh, N. C.

REQUIREMENTS FOR ENTRANCE TO EXAMINATION FOR MEDICAL LICENSE.

An applicant for license to practice medicine in North Carolina must appear before the Board of Medical Examiners in regular session and present a certificate of good moral character, attested by two persons known to the board, a diploma from a medical college in good standing, or a license from some other State, and must deposit $15 with the secretary of the board. He will then be examined upon the following branches of medicine: Anatomy, Physiology, Surgery, Pathology, Hygiene, Chemistry, Pharmacology, Gynecology, Materia Medica, Therapeutics, Obstetrics, Diseases of Children, and the Practice of Medicine. The examinations are written, oral, and practical combined.

He must make an average of 80 per cent upon all the branches, and he must not fall below 35 per cent upon any one branch.

Applicants who are not *bona fide* citizens of North Carolina must satisfy the board that they have an academic education equal to the entrance requirements of the University of North Carolina, and after 1917 this will be required of all persons appearing before the board.

TEMPORARY LICENSE.

An applicant for temporary license must appear before two members of the Board of Medical Examiners and present a certificate of good moral character, a diploma from a medical college in good standing, and must pay a fee of $5. He must then stand a satisfactory examination.

A temporary license continues in force only until the next regular meeting of the board, and is granted but once to the same applicant.

Applicants for temporary license may call upon any two members of the board at their homes at any time in the year, selecting the two most accessible.

REQUIREMENTS FOR RECIPROCITY.

1. Reciprocity is granted only to men of known reputation and ability. Unless the applicant has had five years experience in successful practice in the State in which he then resides, or two years of successful hospital experience, or has filled positions of medical trust accounted by the board as the equal of these, and unless he is a graduate of a high-class medical college and possesses a good preliminary education, his application will not be considered. The burden of proof is upon the applicant to show what his attainments are.

2. He must not have failed before the North Carolina Board.

3. He must present himself in person before the North Carolina Board at its regular session. To this rule no exception is ever made. He must then pay a fee of $50.

4. He must fill out a blank application in regard to his moral character, educational attainments, identity, etc., and file the same with the secretary of the board at least thirty days before the meeting of the board. (Blank applications may be obtained from the secretary upon request.)

5. Reciprocity will be granted to physicians who have been admitted by examination to the United States Public Health Service, the United States Navy or Army, and who have been continuously in service, or have received honorable discharge, and have been in continuous successful practice to the date of application.

In regard to the matter of reciprocity, the State of North Carolina regards the qualifications of the applicant rather than the State from which he comes. In every case it is necessary that the applicant appear in person before the Board of Medical Examiners in regular session, and by this personal interview convince the members of the board that he is a man of intelligence, sobriety, and high personal character. For this reason it is impossible to make a definite promise of reciprocity to any man until he has appeared before the board.

The applicant must also produce papers showing that he has a good preliminary education, is a graduate of a high-grade medical college, and that he has been successful in his medical undertakings since graduation. In addition to the application blank, the applicant must furnish abundant evidence that every statement contained therein is true. That is, when hospital experience is claimed, it must be accompanied by letters from the proper authorities, showing the time of such service, and certifying that this service was satisfactory. The same requirements are made in regard to other positions of medical trust.

Reciprocal relations have been established with Louisiana, Indiana, and Minnesota on a basis of preliminary education and college rating.

With Maryland, Virginia, and Texas, on a basis of two years hospital work or five years of successful practice.

The North Carolina Board reserves the privilege of rejecting any applicant for reciprocity without question or comment on the part of the applicant.

EXAMINATION PAPERS

ANATOMY.

J. F. Highsmith, M.D., Fayetteville.

1. Describe the femur.
2. Describe the structure of the knee joint.
3. Describe the diaphragm, its principal openings, and nerve supply.
4. Bound Scarpa's triangle and mention the vessels and nerves in it.
5. Name the cranial nerves and state which are sensory, motor, and mixed.
6. Describe the Circle of Willis.
7. Describe the kidney and name its blood and nerve supply.
8. Describe the thoracic duct.
9. Trace the cerebro-spinal fluid from the lateral ventricles to the spinal canal.
10. What tissues of the abdominal wall are divided in the operation for appendicitis?

CHEMISTRY AND PEDIATRICS.

Dr. Isaac M. Taylor, Morganton.

1. What is a clinical thermometer? What should be its temperature range? What liquid is used in making it, and why? What do you understand by specific gravity, and what is the ordinary range of the specific gravity of urine?
2. What do you understand by valence? Give the chemical symbol for five elements, the chemical symbols for a medicinal derivative from each, and the proper official name for each of these.
3. What are the conditions necessary for testing by precipitation in laboratory examinations?
4. What is ozone, and how does it differ from oxygen, chemically?
5. What is an alkaloid? Name three used commonly in medicine, and a derivative of each.
6. What is the chemical relation between grain alcohol and wood alcohol?
7. What chemical antidote would you use if carbolic acid had been spilled upon the skin? What would you use if carbolic acid had been taken internally?
8. What remedy would you use after bichloride of mercury had been taken? How would you determine if it was still in the system or being excreted?
9. How are the several foods classified, from a chemical standpoint? An example in each class.

10. What chemical condition is essential to the proper activity of pepsin? How is this provided for? What chemical condition is essential for the proper activity of trypsin? To what class of substances do these belong?
11. Give symptoms, diagnosis, and treatment of thrush.
12. Give physical signs of catarrhal pneumonia.
13. Differentiate between spasmodic laryngitis and membranous croup, and give treatment of latter, dosage of principal remedy.

PRACTICE OF MEDICINE.

Dr. John G. Blount, Washington.

1. Differentiate pathologically between croupous pneumonia and broncho-pneumonia.
2. Name the different varieties of malaria.
   (a) Method of treatment.
   (b) Treatment of chronic infection.
3. What is aphasia? Give area of brain involved.
4. Name all the causes of intestinal obstruction.
5. Give the symptomatology of ulcer of stomach.
6. What is arterio-sclerosis? Name its causes.
7. What is blood pressure?
   (a) What is its significance?
   (b) Give normal systolic at age of 21.
   (c) Normal diastolic.
8. Name the most prominent symptoms of cerebral tumor.
9. Describe chorea and give its treatment.
10. Name the trinity of symptoms upon which you would base a diagnosis of pellagra.
11. What is acarus scabiei? How would you confirm the diagnosis?
12. What is puerperal insanity? Name a few of its clinical manifestations.

SURGERY.

Dr. Hubert A. Royster, Raleigh.

1. Define hematoma, abscess, carbuncle, aneurism, rabies, sapremia, gangrene, papilloma, phlebotomy, pyelitis.
2. Give the symptoms and management of fracture of the base of the skull.
3. What are the two essential factors in the formation of gallstones? What symptoms would lead you to suspect their presence?
4. Name five diseases of the rectum and outline the treatment of each.
5. How would you manage a case of dislocation at the shoulder-joint with fracture of the surgical neck of the humerus on the same side?
6. What are the surgical complications and sequelae of typhoid fever?
7. Describe the best method you know for the treatment of infected wounds.
8. *(a)* Name the causes of scoliosis.
   (b) What is the pathology of infantile paralysis?
9. *(a)* What is the treatment of glaucoma?
   (b) What are the symptoms of mastoiditis?
10. Name four complications of gonorrhea in the male.

OBSTETRICS AND GYNECOLOGY.

Dr. Edwin G. Moore, Elm City.

1. Name the positive signs of pregnancy. Define abortion and premature labor.
2. Outline the management of the different stages of a normal labor.
3. What are the indications for forceps delivery?
   (a) What are the indications for the use of pituitrin?
   (b) How is it administered and in what dose?
   (c) What are the contraindications to its use?
4. What constitutes the bag of waters and what purpose does it serve?
   (a) What is the "Twilight Sleep?"
   (b) In what cases is it applicable?
5. What is post-partum hemorrhage?
   (a) What are its causes?
   (b) What is its treatment?
6. What is the puerperal fever?
   (a) Give the diagnosis, prognosis and treatment of a staphylococcus infection.
   (b) Give the diagnosis, prognosis and treatment of a streptococcus infection.
7. What is salpingitis? Give its causes, pathology and treatment.
8. What are the indications for curettage of the uterus? What are the dangers to be avoided?
9. Why should a lacerated cervix be repaired? What symptoms would lead you to suspect cancer of the uterus?
10. Define procidentia uteri, cystocele, rectocele; define irritable urethral caruncle, mentioning diagnosis and treatment.

PHYSIOLOGY, PATHOLOGY AND HYGIENE.

M. L. Stevens, M. D., Asheville.

Note.—This paper counts 80 points. An individual examination of each applicant, counting 20 points, is also required.

1. Enumerate the physiologic activities of the skin.
2. Give the life history of a pus cell.
3. *(a)* Name the food constituents of cow's milk.
   (b) To what class of foods does each belong?
   (c) How do these constituents compare in food values?
   (d) What part of the digestive apparatus prepares each for absorption?
   (e) How is each utilized in the system?
4. Define leucocytosis and give the technique of method of determining it.
5. Outline the laboratory tests that would aid in the diagnosis of a case in which continued fever is a prominent symptom.
6. *(a)* Describe the lesions in acute parenchymatous nephritis and in chronic interstitial nephritis.
   (b) Differentiate the one from the other by laboratory methods.
7. Name the diseases in which quarantine should be established, stating for each disease mentioned the duration of quarantine, and whether quarantine should apply to entire house or only to room of patient.

8. If a family or group of families in your practice exhibit repeated attacks of malaria, what means other than medical would you advise for its prevention or eradication? Give reason for each step advised.

PHARMACOLOGY, MATERIA MEDICA AND THERAPEUTICS.

Dr. John Q. Myers, Charlotte.

1. Define:
   (a) Pharmacology.
   (b) Materia Medica.
   (c) Therapeutics.
   (d) Toxicology.
   (e) Dosage.
2. Define and give an example of each of the following:
   (a) Cholagogue.
   (b) Galactogogue.
   (c) Diaphoretic.
   (d) Diuretic.
3. Name the important constituents and give dose of the following:
   (a) Basham's mixture.
   (b) Rochelle salts.
   (c) Seidlitz powder.
   (d) Fowler's solution.
   (e) Hoffman's anodyne.
4. Discuss Arsenic, its action and uses. Name its most important compounds and dose of each.
5. How would you treat chronic intestinal stasis?
6. Name and dose of one
   (a) Intestinal antiseptic.
   (b) Urinary antiseptic.
   (c) Antipyretic.
   (d) Nerve sedative.
   (e) Hypnotic.
7. Write a prescription for
   (1) Acute Articular Rheumatism.
   (2) Acute Tonsilitis.
   (3) Mitral stenosis with loss of compensation.
8. Give doses and therapeutic uses of
   (a) Emetin.
   (b) Pituitrin.
   (c) Thyroid extract.
   (d) Suprarenal extract.
   (e) Aspidium.
9. Give origin, doses and uses of the following:
   (a) Digitalin.
   (b) Atropin.
   (c) Strychnin.
   (d) Caffein.
   (e) Codein.
10. Why is black coffee useful in opium poisoning?

GRANTED LICENSE BY EXAMINATION, RALEIGH, JUNE 26–30, 1916.

Name	Address	Medical College	Year	Preliminary
Anderson, Laurie W. (col.)	Johnson City, Tenn.	Leonard	1912	Biddle Univ.
Bennett, Percival R.	Bryson City	Univ. of Md.	1916	High School.
Blue, Alexander McN.	Carthage	Tulane	1915	A.B., U. N. C.
Bray, Thomas L.	Hertford	Univ. of Md.	1916	Wake Forest.
Benshoff, Arthur M.	Waynesville	Jefferson	1916	High School.
Bangle, James A.	Charlotte	North Carolina	1916	High School.
Brantley, Julian C.	Spring Hope	Jefferson	1916	A. & M. College.
Brown, Pressly R.	Charlotte	North Carolina	1914	Davidson College.
Ballance, Jesse R.	Catawba	North Carolina	1912	Turlington Ins.
Bell, Baxter I.	Swan Quarter	Virginia	1915	Univ. N C.
Bender, Ernest L.	Richmond, Va.	Virginia	1916	Univ. N. C.
Capehart, William M. (col.)	Edenton	Meharry	1915	Shaw Univ.
Carr, Matthew L.	Farmville	Virginia	1916	Univ. N. C.
Crouch, Aulcy McR.	Roberdel	Jefferson	1916	High School.
Carter, Paul C.	Holly Springs	Univ. of Md.	1916	B.S., Wake Forest.
Collins, Samuel J. (col.)	Oxford	Bennett	1913	High School.
Donnell, Clyde H. (col.)	Greensboro	Harvard	1915	A.B., Howard Univ.
Davis, Judge B. (col.)	Raleigh	Meharry	1915	A.B., Shaw University.
Davis, Richard B.	Weeksville	Virginia	1915	High School.
Dixon, Hubert C.	Siler City	Univ. and Bellevue	1916	B.S., Wake Forest.
Dillard, George P.	Martinsville, Va.	Bennett	1916	Ill. Med. Col.
English, Ernest L.	Asheville	Univ. of Ga.		High School.
Edwards, Forest D.	Belwood	Atlanta	1914	High School.
Elliott, Forrest	Shelby, R. 6	Medico-Chi.	1916	Univ. N. C.
Eley, Clayton W.	Woodland	Univ. of Pa.	1916	B. S., Univ. of N. C.
Foard, Fred T., Jr.	Hickory	Univ. of Maryland	1916	Univ. N. C.
Francis, William G.	Waynesville	Jefferson	1915	Univ. N. C.
Fuquay, George L.	Coats	North Carolina	1916	High School.
Foster, John F.	East Durham	North Carolina	1916	High School.
Fetzer, Paul W.	Reidsville	Virginia	1916	Univ. N. C.
Faggart, George H.	Philadelphia, Pa.	Jefferson	1916	A. B. Newberry.
Greene, Garland V.	Yadkin College	North Carolina	1916	Trinity.
Griffith, Lewie M.	Asheville	Johns Hopkins	1915	B.S., U. S. C.

Greenwood, Adolphus B.	Asheville	Johns Hopkins	1916	A.B., U. N. C.
Glover, Chester A.	Chesterfield, S. C.	Atlanta	1910	Normal School.
Hipps, Allen G. T.	Spring Creek	Jefferson	1916	B.S., Wake Forest.
Hobbs, Louis L., Jr.	Guilford College	Univ. Pa.	1916	Univ. N. C.
Harward, Percy C.	Morrisville	Virginia	1916	Wake Forest.
Howard, James M., Jr.	New Bern	Virginia	1915	Trinity.
Hines, Edward R.	Rocky Mount	South Carolina	1916	Trinity.
Harris, John W.	Reidsville	Johns Hopkins	1916	A.M., U. N. C.
Haywood, Thomas W. (col.)	West Raleigh	Meharry	1916	St. Augustine.
Hege, J. Roy	Clemmons	Maryland	1916	Trinity.
Hester, John R.	Hurdle Mills	Virginia	1916	Trinity.
Izlar, Henry L.	Winston-Salem	South Carolina	1915	A.B., S. C.
Jennings, Olin H.	E. Fruitland	Jefferson	1916	Univ. N. C.
James, Fairley P.	Laurinburg	Univ. Pa.	1916	A.B., U. N. C.
Jordan, Lawrie E.	Raleigh	Bennett	1916	High School.
Jennings, Casper W.	Richmond, Va.	Virginia	1916	High School.
Keiger, James A.	Tobaccoville	Virginia	1916	Univ. N. C.
Lewis, Sigma V.	Middlesex	Virginia	1916	High School.
Long, Miles T.	Rutherfordton	North Carolina	1916	High School.
Logan, Frank W. H.	Union Mills	North Carolina	1916	High School.
Long, Roy H.	Monroe	Jefferson	1916	Wake Forest.
Long, Lester L.	Grayson	Univ. Tenn.	1916	High School.
Lancaster, Rowland M.	St. Pauls	North Carolina	1914	High School.
Leggett, Virgil W.	Hobgood	Univ. Louisville	1915	Trinity.
Lupton, Charles H.	Sealevel	Univ. Md.	1916	High School.
Moore, Allen H.	Washington	Jefferson	1916	High School.
Mull, William P.	Casar	Jefferson	1916	B.S. and M.A., Wake F.
Mayerberg, Emil R.	Goldsboro	Jefferson	1916	High School.
McKay, William P.	Red Springs	Tulane	1916	Univ. N. C.
McIntosh, William R.	Rockingham	North Carolina	1913	High School.
McKenzie, Benjamin W.	Salisbury	Jefferson	1916	Univ. N. C.
McBrayer, Reuben A.	Sanatorium	Univ. Pa.	1916	A.B., Wake Forest.
Noell, Robert H.	Roxboro	Univ. Md.	1916	Wake Forest.
Parsons, William H.	Covington	North Carolina	1916	Trinity.
Patrick, George R.	Lowell	Univ. Md.	1916	Davidson.
Parker, Paul G.	Potecasi	Virginia	1916	Wake Forest.
Pate, James G.	Gibson	Univ. Pa.	1916	B.S., U. N. C.
Prevette, Isaac C.	North Wilkesboro	University N. Y.	1916	B.S. Wake Forest.
Parker, Walter R.	Woodland	Virginia	1916	Wake Forest.

GRANTED LICENSE—CONTINUED.

Name	Address	Medical College	Year	Preliminary
Prioleau, Philip F.	Eustis, Fla.	South Carolina	1916	Univ. Va.
Rivera, Thomas M. (col.)	Raleigh	Meharry	1915	Tuskegee Inst.
Ray, Ritz C.	Beaver Creek	Virginia	1916	Univ. N. C.
Royster, Thomas S.	Townsville	Univ. Pa.	1916	A.B., Univ. N. C.
Reade, Edwin G.	Durham	Jefferson	1916	Trinity.
Sherrill, Wade H.	Sherrills Ford	Jefferson	1916	B.S., Wake Forest.
Smith, Joseph	Greenville	Virginia	1914	Wake Forest.
Swindell, Lewis H., Jr.	Swanquarter	Univ. Pa.	1916	B.S., Univ. N. C.
Spencer, J. Roy	South Mills	Virginia	1915	Trinity.
Stanton, Thomas M.	High Point	Virginia	1916	Wake Forest.
Starr, Henry F.	Badin			
Smith, William A.	Goldsboro	Univ. Pa.	1916	B.S., Wake Forest.
Strickland, Ernest L.	Wilson	Virginia	1916	High School.
Sloan, William H.	Garland	Univ. Md.	1916	B.S., Davidson.
Sharpe, Frank A.	Greensboro	Univ. Pa.	1916	B.S., Davidson.
Tidmarsh, Henry W.	Whitmire, S. C.	North Carolina	1914	Eskine Col.
Tyner, Carl V.	Lowe	Univ. and Bellevue	1916	B.S., Wake Forest.
Trivette, William A.	Harmony	Virginia	1916	High School.
Uzzle, Edward F.	Raleigh	Jefferson	1916	Univ. N. C.
Vann, Norman St.G.	Philadelphia, Pa.	Univ. Pa.	1916	B.S., Univ. N. C.
Whitehead, Lawther J.	Scotland Neck	Virginia	1916	Davidson.
Wilkes, Grover	Sylva	North Carolina	1916	Col. Inst.
Winstead, John A.	Nashville	North Carolina	1914	Univ. N. C.
Yates, Oscar R.	Morrisville	Virginia	1916	Wake Forest.

GRANTED LICENSE BY RECIPROCITY.

Name	Address	Medical College	Year	State
Adams, Herbert W.	Hendersonville	Univ. N. Y. City	1891	Georgia.
Alexander, Samuel A.	Creswell	Univ. Maryland	1913	Georgia.
Atkinson, Hugh H.	Crestmont	Univ. Penn.	1898	New York.
Braswell, James C., Jr.	Nashville	Virginia	1915	Virginia.
Divers, George T.	Buena Vista, Va.	Univ. College	1909	Virginia.
Douthitt, C. H.	Roaring River, N. C.	Baltimore	1914	Maryland.
Hanes, F. M.	Winston-Salem	Johns Hopkins	1908	Virginia.
Lea, Juanita I.	Detroit, Mich.	Michigan	1906	Michigan.
Mimms, C. W.	Winston-Salem.	Univ. Louisville	1914	Kentucky.
Patchin, D. F.	Roanoke Rapids	Univ. and Bellevue	1913	New York.
Robinson, L. F.	Raleigh	Jefferson	1912	Indiana.
Scott, Rupert C.	Sea Ile City, N. J.	Jefferson	1902	Pennsylvania.
Seagle, Richard L.	Hendersonville	Tulane	1906	Louisiana.
West, George H.	Belmont	Univ. Maryland	1889	Pennsylvania.
Willis, B. C.	Rocky Mount	Virginia	1909	Virginia.
Willis, H. Clay	Avoca	P. & S., Memphis, Tenn.	1911	D. C.
Youmans, William F.	Electric	South Carolina	1906	Georgia.

GRANTED LIMITED LICENSES.

Bradshaw, Isaac W.	Relief N. C.	To practice only in Mitchell and Yancey counties.
Bingham, W. O.	Sugar Grove, N. C.	To practice only in Avery and Watauga counties.
Jones, Edward W.	Hatteras, N. C.	To practice only in those parts of Dare, Hyde and Carteret counties included between New Inlet and Ocracoke Inlet and in the town of Portsmouth, N. C.
Seay, David F.	Spring Creek, N. C.	To practice only in all of Madison County and in Fine's Creek, Crabtree, Jonathan's Creek and Chattlaoochee Township of Haywood County, and in Sandy Marsh Township of Buncombe County.

TWO YEAR STUDENTS PASSED ON FIRST TWO YEARS' WORK.

Name	Address	Medical College
Combs, Howard J.	Columbia	University N. C.
Crozier, J. Richard	Wake Forest	Evansville, Ind.
Corpening, Cora Z.	Mars Hill, N. C.	University, N. C.
Carter, Rupert F.	Apex	Wake Forest.
Dickson, James G.	Raeford	University, N. C.
Gaither, Alfred L.	Statesville	University, N. C.
Gibbon, James W.	Charlotte	Jefferson.
Hayworth, Ray W.	Asheboro	University N. C.
Hawfield, James	Matthews	University, N. C.
Harrell, William H.	Williamston	University, N. C.
Hicks, Vonnie M.	Greensboro	University N. C.
Hensley, Charles A.	Burnsville	Jefferson.
Hatcher, Martin A.	Rose Hill	Virginia.
James, Albert W.	Laurinburg	Jefferson.
Knowles, Daniel L.	Mount Olive	University N. C.
Lawrence, Benjamin J.	Raleigh	University N. C.
Lyon, Henry W.	Windsor	University N. C.
Moore, Junlian A.	Wilmington	University N. C.
Mangum, Charles P.	Kinston	University N. C.
McNairy, Margaret C.	Lenoir	Womens Med. of Pa.
Rayner, Daniel	Raleigh	University N. C.
Smith, Claiborne T.	Scotland Neck	University N. C.
Scott, Samuel F.	Haw River	University N. C.
Sledge, Robert T.	Winston-Salem	Wake Forest.
Street, Claudius A.	Linville Falls	Harvard.
Scott, Annie V.	Greensboro	Womens Med Col., Pa.
Thompson, Edgar S.	Fairmont	Wake Forest.
Wadsworth, Harvery B.	Cove City	University N. C.
Williams, Leonidas P.	Warsaw	Wake Forest.
Williams, William C.	Fayetteville	University N. C.
Wolff, Denis R.	Rural Hall	University N. C.
Wheeler, Jim H.	Holly Springs	University N. C.

ALPHABETICAL LIST OF MEMBERS OF MEDICAL SOCIETY, WITH POSTOFFICE ADDRESS

[Those marked with * were present at the Annual Convention in Durham.]

Name.	*Address.*
Abel, J. F.	Waynesville
*Abernethy, C. O.	Raleigh
*Abernethy, E. A.	Chapel Hill
Abernethy, H. N.	Denver
Abernethy, J. S.	Charlotte, R. F. D. 6
*Absher, D. C.	Henderson
Achorn, J. W.	Pine Bluff
*Adams, C. A.	Durham
Adams, C. E.	Gastonia
Adams, J. L.	Asheville
*Adams, M. R.	Statesville
Adams, N. B.	Murphy
*Adams, R. K.	Raleigh
*Adkins, M. T.	Durham
Akerman, Joe	Wilmington
Alexander, A. L.	Charlotte
Alexander, J. R.	Charlotte
*Allan, William	Charlotte
Allen, B. G.	Henderson
Allen, J. A.	New London
Allen, R. L.	Waynesville
Allhand, J. M.	Cliffside
Ambler, C. P.	Asheville
Anders, M. G.	Gastonia
*Anderson, Albert	Raleigh
Anderson, C. A.	Burlington
Anderson, J. A.	McAdenville
Anderson, J. G.	Asheville
Anderson, J. N.	Albemarle
Anderson, J. R.	Morganton
*Anderson, P. V.	Richmond, Va.
*Anderson, T. E. (Hon.)	Statesville
*Anderson, W. H.	Wilson
*Anderson, W. S.	Wilson
Andrews, N. H.	Rowland
Andrews, R. M.	Union Mills, R. F. D.
Andrews, V. L.	Mount Gilead
Anthony, J. E.	Kings Mountain
Archer, I. J.	Black Mountain
Armfield, Romulus	Marshville
Armstrong, C. W.	Troy
Arnold, L. J.	Lillington
*Asbury, F. E. (Hon.)	Ashboro
Ashby, E C.	Mount Airy
Ashby, T. B.	Mount Airy
Ashcraft, J. E.	Monroe
Ashe, J. R.	Charlotte
Ashworth, B. L.	Marion
*Ashworth, W. C.	Greensboro
Atkins, E. H.	Rosemary
Attmore, G. S.	Stonewall
Austin, F. DeC.	Charlotte
Austin, J. A.	Charlotte
*Austin, J. W.	High Point
*Averitt, K. G.	Cedar Creek
Aydlett, H. T.	Elizabeth City
Aydlett, J. P.	Earl
Bahnson, H. T. (Hon.)	Winston-Salem
Baird, C. A.	Mount Airy
Baird, J. H.	Mars Hill
Baird, J. W.	Mars Hill
Baker, J. M. (Hon.)	Tarboro
Baker, W. E.	Arden
Ball, M. W.	Newport
Ballard, A. M.	Asheville
Bandy, W. G.	Maiden
*Banner, C. W.	Greensboro
*Barbee, G. S.	Wendell
*Barefoot, J. J.	Graham
Barefoot, M. L.	Dunn
Barnes, B. F.	Elm City
Barr, F. E.	Townsville
*Bass, H. H.	Henderson
Bass, S. P.	Tarboro
Battle, G. C.	Rocky Mount
Battle, J. P.	Nashville
*Battle, J. T. J.	Greensboro
*Battle, K. P. Jr. (Hon.)	Raleigh
Battle, S. W.	Asheville
*Baynes, R. H.	Hurdle Mills
*Baynes, R. S.	Hurdle Mills
*Beall, L. G.	Greensboro
Beall, W. P. (Hon.)	Greensboro
Beam, R. S.	Lumberton
Beard, G. C.	Kerr, R. F. D.
*Beckwith, R. B.	Rosemary
*Bell, C. W.	Raleigh
Bell, G. M.	Wakefield
Bellamy, R. H.	Wilmington
Bellamy, W. J. H. (Hon.)	Wilmington
*Belton, J. F.	Winston

Name.	*Address.*
Best, H. B.	Wilson
*Biggs, M. H.	Rutherfordton
*Bizzell, T. M.	Goldsboro
*Bitting, N. D.	Durham
Black, J. C.	Harrisburg
Blair, A. McN.	Southern Pines
Blair, M. P.	Marshville
Blair, R. M.	Williamston, R. F. D.
Blalock, N. M.	Gullys Mills
*Blount, J. G.	Washington
*Boddie, N. P. (Hon.)	Durham
*Boice, E. S.	Rocky Mount
Bolles, C. P. Jr.	Wilmington
*Bolton, Mahlon	Rich Square
Bonner, H. M.	New Bern
*Bonner, K. P. B.	Morehead City
*Booker, L. S.	Durham
*Boone, W. H.	Durham
Booth, S. D.	Oxford
*Booth, T. L.	Oxford
Bostic, W. C.	Forest City
Bowdoin, G. E.	Wilmington
Bowers, M. A.	Thomasville
*Bowling, E. H.	Durham
Bowman, E. L.	McDonalds
Bowman, H. P.	Greensboro
Boyden, W. C.	China Grove
Boyette, E. C.	Charlotte
*Boyles, A. C	Durham
Boyles, J. H.	Greensboro
Braddy, W. H.	Greensboro
*Bradsher, W. A.	Roxboro
Brandon, W. R.	Kannapolis
Brantley, H.	Spring Hope
*Braswell, J. C.	Nashville
Brawley, M. H.	Salisbury
*Brawley, R. V.	Salisbury
Brawling, E. H.	Durham
*Brenizer, A. G.	Charlotte
*Briggs, H. H.	Asheville
Brittle, P. C.	Conway
Brockett, W. E.	Caroleen
Brothers, J. E.	Goldsboro
Brown, Geo. W.	Fayetteville
Brown, J. S.	Hendersonville
Brownson, W. C.	Asheville
Brooks, B. U.	Durham
Brooks, H. M.	Olive Branch
Brookshire, H. G.	Leicester
Brown, G. W.	Raeford
*Brown, J. C.	Fairmont
Bryan, L. D.	Sneed's Ferry
Buchanan, C. L.	Plumtree
*Buchanan, E. J.	Lexington
Buchanan, S. E.	Concord
Buckner, J. M.	Swannanoa
Buckner, R. G.	Asheville
Buffalo, J. S.	Garner
Bullard, G. F.	Elizabethtown
*Bullitt, J. B.	Chapel Hill
Bullock, D. W.	Wilmington
*Bullock, T. C.	Autryville
*Bullock, W. B.	Hester
*Bulluck, E. S.	Wilmington
Bunn, J. J.	Mount Pleasant
Burleson, L. N.	Concord
Burleson, W. B.	Cranberry
Burnett, J. E.	Mars Hill
*Burns, W. M.	Goldston
*Burrus, J. T.	High Point
Burt, S. P.	Louisburg
*Burtt, B. W.	New Hill
Busby, J. G.	Spencer
*Butler, B. F.	Clinton
*Byerly, A. B.	Cooleemee
Bynum, C. M.	Vandemere
Bynum, John	Winston-Salem
Bynum, W. H.	Germanton
Caldwell, D. G. (Hon.)	Concord
Caldwell, J. H.	Charlotte
Caldwell, W. H.	Snowden
Callaway, A. W.	Asheville
*Campbell, A. C.	Raleigh
Campbell, J. R.	Newton
Campbell, Paul	Clinton
Cannaday, N. B.	Louisburg
Cannaday, S. H.	Oxford
*Carlton, R. L.	Kernersville
*Carpenter, F. A.	Statesville
Carr, R. L.	Rose Hill
*Carroll, E. D. D.	Raleigh
Carroll, J. L.	Hookerton
*Carroll, J. W.	Wallace
*Carstarphen, W. F.	Wake Forest
Carter, G. H.	King's Creek
Carter, H. W.	Washington
*Cason, H. M. S.	Edenton
Cathell, E. J.	Lexington
Caton, G. A.	New Bern
Cauble, H. H.	Kannapolis
Causey, P. P.	Wilmington
Caveness, Z. M.	Raleigh
Champion, C. O.	Mooresboro
Chaney, T. M.	Winston
Chapin, H. T.	Pittsboro
Chapin, W. B.	Townsville
*Cheatham, Archibald	Durham

Name.	*Address.*
*Cheek, C. E.	Fuquay Springs
Cheeseborough, T. P.	Asheville
*Choate, G. W.	Rockwell
Clark, E. C.	Clarkton
Clark, F. M.	Middleton
Clark, G. L.	Clarkton
Clemenger, F. J.	Asheville
Cliff, B. F.	Flat Rock
Clifford, J. S.	Charlotte
Clodfelter, C. M.	Lexington
Cobb, W. H.	Goldsboro
Cocke, J. E.	Asheville
Coe, S. S.	High Point
Colby, C. DeW.	Asheville
Cole, W. F.	Greensboro
Coleman, G. S.	Kenly
Cooke, Q. H.	Woodland
*Cooper, G. M.	Raleigh
Coppedge, N. P.	Ellerbe
Coppedge, T. O.	Castalia, R. F. D. 1
Costello, M. J.	Asheville
Cotton, C. E.	Black Mountain
Council, J. B.	Salisbury
*Cox, B. W. P.	Goldsboro
Cox, E. L.	Jacksonville
Cox, Thos. A.	Hertford
Craig, S. D.	Winston-Salem
Cranford, J. F.	Hendersonville
Cranmer, J. B.	Wilmington
Craven, F. C.	Ramseur
Craven, W. W.	Huntersville
*Crawford, J. M.	Asheville
Crawford, R. W.	Wilmington
*Crews, N. H.	Henderson
Crocker, W. D.	Warsaw
Cromartie, R. S.	Garland
Croom, G. A.	Wilmington
*Crowell, A. J.	Charlotte
*Crowell, L. A.	Lincolnton
Crowell, S. M.	Charlotte
Cummins, M. P.	Reidsville
Currie, D. S.	Parkton
Currie, E. W.	Salisbury
Cutchin, J. H.	Whitakers
Daligny, Charles	Troy
*Dalton, D. N.	Winston
Dalton, W. N.	Winston
Dameron, E. Lee	Star
*Daniel, N. C.	Oxford
*Daniels, O. C.	Goldsboro
Daniels, R. L.	Swansboro
*Davidson, J. E. S.	Charlotte
Davis, J. F.	Glendon
Davis, J. J.	Beaufort
Davis, J. W.	Statesville
*Davis, T. D.	Winston-Salem
Davis, W. W.	Belmont
Dawson, W. W.	Greenville
Dean, T. J.	Nashville
DeArmon, J. McC.	Charlotte
*Dees, R. E.	Greensboro
*Dees, R. O.	Greensboro
Denchfield, A. L.	Asheville
Denson, H. A.	Bennett
*Dick, J. V.	Gibsonville
Dickie, H. S.	Wilmington
Dickinson, E. T.	Wilson
Dickson, A. P.	Raeford
Dillard, Richard (Hon.)	Edenton
Disosway, A. W.	Plymouth
Dixon, D. R.	Rocky Mount
*Dixon, Guy E.	Hendersonville
Dixon, W. F.	Ayden
*Dodson, H. H.	Greensboro
Dowdy, G. E.	Winston
Drafts, A. B.	Hendersonville
Duffy, Leinster	New Bern
Duffy, R. N.	New Bern
Duncan, C. L.	Beaufort
Duncan, G. F.	High Point
Dunlap, L. V.	Albemarle
*Dunn, W. L.	Asheville
Eagles, C. S.	Saratoga
Earnhardt, J. M.	Mount Pleasant
*Eason, Oscar	Princeton
Eckel, O. F.	Asheville
Eddleman, H. M.	Gastonia
Edgerton, J. L.	Hendersonville
Edgerton, M. T. Jr.	Greenville
Edwards, A. D.	Winston
Edwards, B. O.	Landis
Edwards, G. C.	Hookerton
Elias, L. W.	Asheville
Ellen, C. J.	Battleboro R. F. D.
Ellington, J. H.	Sandy Ridge
Ellis, R. C.	Shelby
English, E. S.	Brevard
Erwin, E. W.	Laurinburg
Eubanks, J. B.	Monroe
*Evans, L. B.	Windsor
Everett, A. C.	Rockingham
*Faison, I. W. (Hon.)	Charlotte
*Faison, W. W. (Hon.)	Goldsboro
*Faison, Yates	Charlotte
*Farthing, L. E.	Pittsboro

Name.	*Address.*
*Fassett, B. W.	Durham
*Faucett, T. S.	Burlington
Fearing, Isaiah	Elizabeth City
Fearing, Zenas	Elizabeth City
Fearington, J. P.	Winston
*Felts, R. L.	Durham
Fenner, E. F.	Henderson
Ferebee, C. G.	South Mills
Ferebee, E. B.	Raleigh
Ferguson, H. B.	Halifax
Ferrell, John A.	61 B'way, N. Y. City
*Fields, R. M.	Goldston
Fleming, M. J.	Hamilton
Fleming, W. D.	Enfield
*Fletcher, M. H. (Hon.)	Asheville
Flint, S. S.	Rural Hall
Flippin, J. M.	Mount Airy
*Flippin, R. E. L.	Pilot Mountain
Flippin, S. T.	Siloam
Flowe, R. Frank	Kannapolis
*Flowers, C. A.	Columbia
Flowers, C. E.	Columbia
Flowe, J. W.	Kannapolis
Floyd, A. G.	Fair Bluff
Floyd, L. D.	Cerro Gordo
Foil, M. A.	Mount Pleasant
Fortune, A. F.	Greensboro
Fowlkes, J. I.	Hamlet
Fox, D. L.	Randleman
Fox, M. F. (Hon.)	Guilford College
*Fox, T. I.	Franklinville
Frazer, H. T.	Asheville
*Frizzelle, M. T.	Ayden
*Furman, W. H.	Henderson
Gallant, R. M.	Charlotte
Galloway, W. C. (Hon.)	Wilmington
Gamble, J. R.	High Shoals
Gardener, G. D.	Asheville
Garren, R. H.	Monroe
Garrett, F. B.	Rockingham
*Garrett, F. J.	Rockingham
*Garrison, D. A.	Gastonia
Gayle, E. M.	Morganton
Gentry, G. W.	Timberlake
George, D. S.	Marshallburg
Gibbon, R. L.	Charlotte
*Gibson, J. S.	Gibson
*Gibson, M. R.	Raleigh
Gill, J. N.	Weaverville
Gilmer, C. S.	Greensboro, R. F. D. 6
Gilmer, B. H.	Plymouth
Ginn, L. E.	Waxhaw
Ginn, T. L.	Goldsboro
Gladmon, Ed.	Southern Pines
*Glenn, E. B.	Asheville
Glenn, H. F.	Gastonia
*Glenn, L. N.	Gastonia
Godwin, G. C.	Pine Level
*Gold, C. F.	Ellenboro
Gold, T. R.	Lawndale
Goley, W. R.	Graham
Goley, W. R.	Shallotte
Goodman, A. B.	Lenoir
Goode, T. V.	Morganton
Gouger, G. J.	Concord R. F. D.
Goodwin, A. W.	Raleigh
*Gordon, J. R.	Cary
Gove, A. M.	Greensboro
*Grady, J. C.	Kenly
Grady, L. V.	Taylors
Graham, Benj.	Wilmington
Graham, G. A.	Raeford
Graham, Joseph	Durham
Graham, W. A.	Charlotte
Grantham, W. L.	Lumberton
Gray, E. P.	Winston-Salem
Grayson, Charles S.	High Point
Green, T. M.	Wilmington
Greene, A. W.	Ahoskie
Green, I. E.	Weldon
Greene, J. B.	Asheville
*Greene, W. W.	Tarboro
Greenwood, B. H.	Waynesville
Greenwood, S. E.	Fletcher R. F. D.
Grier, C. T.	Carthage
Grier, S. A.	Harrisburg
*Griffin, C. O.	Bethel
Griffin, J. A. (Hon.)	Clayton
Griffin, T. A.	Clayton
Griffin, W. R.	Morganton
Griffith, F. W.	Asheville
Griggs, J. B.	Elizabeth City
Griggs, W. T.	Poplar Branch
Grimes, W. S.	Winston-Salem
Grover, Chas.	Rosman
*Hackney, B. H.	Bynum
*Halford, J. W.	Lillington
Hall, E. H.	Dunlap
Hall, J. C.	Albemarle
*Hall, J. K.	Richmond, Va.
Hall, Wright (Hon.)	Wilmington
*Hasley, B. F.	Roper
Hammock, J. C.	Walkerton
Hammond, A. F.	Pollocksville
Hamrick, T. G.	Shelby
Hand, E. H.	Pineville
*Hardee, P. R.	Stem
Hardin, E. R.	Clinton

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*Hardin, E. R.	Pineville
Harding, T. R.	Yadkinville
Hardy, I. M.	Washington
Hargrove, R. H. (Hon.)	Robersonville
*Hargrove, W. F.	Kinston
Harnett, J. H.	Wilmington
Harper, J. H.	Snow Hill
Harper, J. W.	Wilmington
Harrell, L. B.	Caroleen
Harrell, S. N.	Tarboro
Harris, A. G.	Fairfield
Harris, A. H.	Wilmington
Harris, E. B.	Rutherfordton
*Harris, F. R.	Henderson
Harris, I. A. (Hon.)	Alexander
Harris, J. H.	Franklinton
Harris, L. W.	Haskins
Harrison, A. S.	Enfield
Harrison, A. S.	Weldon
Harrison, Edmund	Greensboro
Harrison, J. S.	Elm City
Hartsell, J. A.	Concord
Hasell, J. L.	Creswell
Hathcock, T. A.	Norwood
Hauser, M. C.	Advance
Hauser, O. J.	Charlotte
*Hays, B. K.	Oxford
*Hays, R. B.	Fayetteville
Haywood, Hubert	Raleigh
*Haywood, Hubert, Jr.	Raleigh
*Hayworth, C. A.	Coleridge
Heilig, H. G.	Salisbury
Hemphill, C. H.	Forest City
Henderson, R. B.	Franklinton
Henderson, S. M.	Charlotte
*Henderson, T. B.	Henderson
Hennessee, E. A.	Glen Alpine
Herbert, W. P.	Asheville
Herman, F. L.	Conover
*Herring, B. S.	Wilson
Hester, J. R.	Knightdale
*Hiatt, H. B.	High Point
*Hicks, C. S.	Durham
Hicks, C. W.	Durham
Hicks, I. F.	Dunn
Hicks, Romeo	Henrietta, R. F. D.
*Hicks, W. N.	Durham
Highsmith, Charles	Dunn
*Highsmith, J. F.	Fayetteville
*Highsmith, Seavey	Fayettville
*Highway, S. C.	Murphy
*Hill, C. D.	Durham
Hill, D. J.	Lexington
Hill, J. N.	Murphy
Hill, L. H. (Hon.)	Germanton
Hilton, J. J.	Greensboro
Hinnant, Melford	Micro
*Hocutt, B. A.	Clayton
*Hodges, J. M.	Cranberry
Hodgin, H. H.	Red Springs
Hoggard, W. A	Woodville
Hollingsworth, E. M.	Mount Airy
Hollingsworth, E. T.	Ivanhoe
Hollingsworth, R. E.	Mount Airy
*Holloway, O. W.	North Side
*Holloway, R. L.	West Durham
Hollyday, W. M.	Asheville
Holmes, A. B.	Council
Holt, T. J.	Wise
*Holt, W. P.	Duke
Holt, W. T.	McLeansville
*Honnicutt, W. J.	Asheville
Hood, J. S.	Kings Mountain
Hooks, T.	Smithfield
Hooper, John O.	Saluda
Hoover, C. H.	Crouse
Hoover, H. R.	Wilson
Horton, M. C.	Raleigh
Horton, W. C.	Raleigh
Horton, W. P.	N. Wilkesboro
Houck, Albert	Morganton
Housacker, Charles G.	Hickory
Houser, E. A.	Fallston
Hovis, L. W.	Haskill
Howell, W. L.	Ellerbe, R. F. D.
Howes, S. J.	Dover
Hoyle, H. B.	Biscoe
Hubbard, C. C.	Farmer
Hunnicutt, W. J.	Asheville
Hunt, C. W.	Brevard
Hunter, B. R.	Charlotte
Hunter, H. H.	Pinetown
Hunter, J. V.	Ashboro
Hunter, L. W.	Charlotte
Hunter, Myers	Charlotte
Hunter, M. C.	Huntersville
Hunter, N. C.	Rockingham
*Hurdle, S. W.	Lewisville
*Huston, J. W.	Asheville
Hyatt, F. C.	Greensboro
Hyatt, H. O.	Kinston
Ingram, C. B.	Mount Gilead
Irvin, Henderson	Eureka
Irwin, J. R. (Hon.)	Charlotte
Jacocks, W. P.	Kingston, St. Vincent, B. W. I.
Jackson, C. C.	Yeatesville

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Jackson, W. L.	High Point
James, W. D.	Hamlet
James, W. D.	Laurinburg
*Jarboe, Parran	Greensboro
Jarmon, F. G.	Rosemary
*Jenkins, C. L.	Raleigh
Jerome, J. R.	Wingate
Jewett, R. D.	Winston
*John, Peter	Laurinburg
Johnson, Alice E.	Asheville
*Johnson, B. C.	Bunn
Johnson, Floyd	Cerro Gordo
Johnson, J. G.	Charlotte
Johnson, N M. (Hon.)	Durham
Johnson, R. W.	Apex
*Johnson, T. L.	Lumberton
Johnson, W. A.	Reidsville
Johnson, W. M.	Winston-Salem
Jonas, J. F.	Marion
Jones, A. G.	Walnut Cove
*Jones, C. M.	Grimesland
*Jones, R. Duval	New Bern
Jones, Wm. M.	Greensboro
*Jordan, A. C.	Durham
Jordan, C. S.	Asheville
Jordan, T. M.	Raleigh
Jordan, W. S.	Fayetteville
Juat, Francis	Raeford
*Judd, E. C.	Raleigh
*Judd, J. M.	Cardenas
*Julian, C. A.	Thomasville
Justice, G. B.	Marion
Kafer, Oswald O.	Edward
Kapp, H. H.	Winston
Kendrick, R. L.	Elizabeth City
*Kent, A. A.	Lenoir
*Kerns, T. C.	Durham
Kerr, J. D. Jr.	Clinton
Killian, R. B.	Lincolnton R. F. D.
King, M. M.	Brevard
King, M. N.	Durham
King, P. N.	Charlotte
King, R. M.	Concord
Kinsman, H. F.	Hamlet
Kirby, G. S.	Marion
Kirk, W. R.	Hendersonville
Kirkpatrick, L. R.	Maxton
*Kitchin, T. B.	Scotland Neck
Kizer, W. C.	Reepsville
Klutz, P. J.	Newton
Knight, J. B. H.	Williamston
*Knight, W. P.	Greensboro
Knoefel, A. E.	Black Mountain
*Knox, A. W.	Raleigh
*Koonce, S. E.	Wilmington
Kornegay, George N.	Kinston
*Kornegay, L. W.	Rocky Mount
Lafferty, R. H.	Charlotte
Lamm, I. W.	Lucama
Landen, J. F.	Chinquapin
Lane, John L.	Rocky Mount
Lapham, Mary E.	Highlands
Lassiter, E. W.	Rich Square
Laster, P. D.	Moncure R. F. D. 1
Laton, J. F.	Albemarle
Lattimore, E. B.	Shelby
*Laughinghouse, C. O'H.	Greenville
*Lawrence, C. S.	Winston-Salem
Ledbetter, J. M.	Rockingham
Lee, L. V.	Lattimore
Lee, R. E.	Clinton
Lee, S. P. J.	Dunn
Leggett, K.	Hobgood
Le Gwin, J. B.	Wilmington
Lepper, D. H.	Hiddenite
Leinbach, R. F.	Charlotte
Leonard, G. F.	Washington, D C.
Lester, E. W.	Weeksville
Lewis, G. W.	Wilson
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*Lewis, R. H. (Hon.)	Raleigh
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*Linville, A. Y.	Winston-Salem
Lister, J. L.	Jackson
Livingston, E.	Gibson
*Lloyd, B. B.	Venable
Lockett, E. A.	Winston-Salem
Long, F. Y.	Catawba
Long, B. L.	Glen Alpine
Long, B. L.	Hamilton
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Long, E. M.	Oak City
*Long, H. F.	Statesville
*Long, J. W. (Hon.)	Greensboro
*Long, T. W.	Newton
Long, T. W. M.	Roanoke Rapids
Long, V. McK.	Winston
Long, W. T.	Roxboro
*Lott, H. S.	Winston-Salem
*Love, B. E.	Roxboro
Love, W. J. (Hon.)	Wilmington
Lovelace, T. B.	Henrietta, R. F. D.
*Lowery, J. R.	Raleigh
Lubchenks, M. E.	Newells
Lucas, W. H. G.	White Oak
Lyday, T. A.	Stanly

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Lyle, S. H.	Franklin
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*Lyon, E. H.	Bahama
MacConnell, J. W.	Davidson
MacIntosh, L. C.	Henderson
MacKethan, D. G.	Fayetteville
MacKethan, J. A.	Fayetteville
*MacNider, W. DeB.	Chapel Hill
*Macon, G. H.	Warrenton
Macon, P. J.	Warrenton
Mallett, E. P.	Hendersonville
Malloy, S. A.	Yanceyville
Malone, J. E.	Louisburg
*Mann, I. T.	High Point
Mann, J. E.	Lake Landing
Mann, Stuart	Moyock
Mann, T. A.	Fairfield
*Manning, I. H.	Chapel Hill
*Manning, J. M.	Durham
Marr, M. W.	Pinehurst
Marriner, N. B.	Belhaven
Martin, C. M.	Danbury
Martin, J. H.	Red Oak
Martin, J. H.	Battleboro
Martin, J. H.	Mt. Airy
*Martin, M. S.	Mt. Airy
Martin, S. L.	Leaksville
Martin, W. C.	Mocksville
Matheson, J. P.	Charlotte
*Matheson, R. C.	Madison
Matthews, J. O.	Clinton
Matthews, J. H.	Vass
*Matthews, M. L.	Cameron
Matthews, T. A.	Castalia
Matthews, W. S.	Cleveland Mills
Matthews, Wm. W.	Spray
Maxwell, C. S.	Beaufort
Maxwell, H. B.	Whiteville
Maynard, J. D.	Knott's Island
McAdams, C. B.	McAdenville
McAnally, W. J.	High Point
McBrayer, L. B.	Sanatorium
*McBrayer, T. E.	Shelby
McCain, H. W.	High Point
McCall, A. C.	Rocky Mount
*McCampbell, John	Morganton
McCanless, W. L.	Danbury
McCanless, W. V.	Danbury
McComas, C. J.	Gastonia
McCotter, S. E.	Bayboro
McCoy, T. M.	Mount Holly
McCracken, C. M.	Fairview
*McCracken, J. R.	Waynesville
McCuiston, A. M.	Atlantic
McCullers, J. J. L.	McCullers
McDaniel, C. B.	Rutherfordton
McDaniels, L. E.	Lasker
McDonald, A. D. (Hon.)	Wilmington
McDowell, F. C.	Zebulon
*McFayden, P. R.	Concord
*McGeachey, R. S.	Raleigh
McGee, J. W. Jr.	Raleigh
*McGougan, J. V.	Fayetteville
*McIntosh, D. M.	Old Fort
*McIver, E. M.	Jonesboro
*McIver, Lynn	Sanford
McKaig, F. T.	Andrews
McKay, H. W.	Charlotte
*McKay, J. F.	Buie's Creek
*McKee, John S.	Raleigh
*McLaughlin, C. S.	Charlotte
McLaughlin, J. E.	Statesville
McLean, Allen	Wagram
McLean, J. W.	Godwin
McLean, Peter	Laurinburg
McLemore, G. A.	Clayton
McLeod, A. H.	Aberdeen
McLeod, G. M.	Carthage
McMahan, J. W.	Crestmont
McManas, W. L.	Bonlee
McMillan, B. F.	Red Springs
McMillan, J. L.	Red Springs
McMillan, R. D.	Red Springs
McMillan, W. D. (Hon.)	Wilmington
*McMullan, Oscar	Elizabeth City
McNairy, C. B.	Lenoir
McNeill, J. W. (Hon.)	Fayetteville
McPhail, L. D.	Rockingham
*McPherson, C. W.	Burlington
*McPherson, S. D.	Durham
*Meadows, E. B.	Oxford
*Meadows, W. J.	Greensboro
Mease, J. H.	Canton
Mebane, W. C.	Wilmington
Mebane, W. N.	Greensboro
Misenheimer, A. C. (Hon.)	Charlotte
Melvin, W. C.	Linden
Menzies, H. C.	Hickory
Meriwether, B. M.	Asheville
Merony, B. B.	Murphy
*Merritt, J. H.	Woodsdale
Michaux, E. R.	Greensboro
Miles, Mary S.	Greensboro
Miller, J. F.	Asheboro
Miller, R. B.	Goldsboro
*Milliken, Jas.	Moncure
*Minor, C. L.	Asheville
Mitchell, G. W.	Macclesfield
Mitchell, W. F.	Shelby

Name.	*Address.*
Moir, S. A.	Francisco
Monk, H. D.	Trenton
Monk, G. M.	Spencer
Monk, H. L.	Spencer
*Monroe, J. P.	Sanford
Monroe, W. A.	Sanford
Montague, S. S.	Roxboro R. F. D.
Montgomery, J. C.	Charlotte
Moore, A. W.	Charlotte
Moore, C. E. (Hon.)	Wilson
Moore, C. E.	Greensboro
Moore, D. B.	Drexel
*Moore, E. G.	Elm City
Moore, F. T.	Benson
Moore, H. T.	Wilmington
*Moore, J. C.	Mortimer
Moore, J. L.	Wendell
Moore, J. N.	Marshall
Moore, K. C.	Wilson
*Moore, Oren	Charlotte
Moore, W. B.	Smith
Moore, W. H.	Wilmington
Moore, W. J.	Ashboro
Morphew, M. F.	Marion
Morris, E. R.	Asheville
Morris, J. A.	Oxford R. F. D. 2
Morrow, W. C.	Andrews
Morse, L. B.	Hendersonville
Moseley, C. W.	Greensboro
Moseley, H. P.	Farmville
Moseley, Z. V.	Kinston
*Moser, W. D.	Burlington
Mudgett, W. C.	Southern Pines
*Munroe, J. P.	Charlotte
Munt, H. F.	Boardman
*Murphy, J. G.	Wilmington
*Murphy, W. B.	Snow Hill
Myerburg, I. W.	Pine Level
*Myers, J. Q.	Charlotte
Nalle, B. C.	Charlotte
Nance, G. B.	Monroe
Nash, Fred	St. Pauls
Neal, J. W.	Monroe
Nelson, R. J.	Robersonville
Nesbitt, C. T.	Wilmington
Nesbit, W. C.	Charlotte
Newby, G. E.	Hertford
*Newell, H. A.	Louisburg
Newell, J. O.	Henderson, R. F. D. 4
*Newell, L. B.	Charlotte
Newman, H. H.	Salisbury
Nichols, A. F.	Roxboro
*Nichols, C. G.	Roxboro
*Nichols, R. E.	Gorman
Nicholson, B. M.	Ringwood
Nicholson, C. R.	Harmony
Nicholson, J. L. (Hon.)	Richlands
Nicholson, J. L.	Washington
Nicholson, J. T.	Bath
Nicholson, P. A.	Washington
Nicholson, S. T.	Washington
*Noble, R. J. (Hon.)	Selma
*Noble, R. P.	Raleigh
Nobles, J. E. (Hon.)	Greenville
Norman, G. W.	Greensboro
Norman, J. H.	Vaughan
Norris, Henry	Rutherfordton
Northrop, T. L.	St. Pauls
Norton, N. D.	Norlina
Oats, Geo.	Grover
Ogburn, H. H.	Greensboro
*Olive, P. W.	Wade
Olive, W. W.	Durham
*Oliver, A. S.	Norlina
*Orr, C. C.	Asheville
Orr, C. V.	Andrews
Packard, G. H.	White Rock
Paddison, J. R.	Kernersville
Page, B. W.	Lumberton
Page, J. W.	Burlington
Palmer, B. H.	Shelby
Palmer, M. C.	Tryon
Paquin, Paul	Asheville
Parker, C. G.	Woodland
Parker, C. P.	Gansbury
*Parker, J. R.	Goldsboro
*Parrott, A. D.	Kinston
*Parrott, J. M.	Kinston
*Parrott, W. T.	Kinston
*Pate, F. J.	Greensboro
Pate, G. M.	Raynham
Pate, W. T.	Gibson
Patrick, L. M.	Gastonia
Patten, W. T.	Edward
*Patterson, J. A.	Concord
Patterson, J. F.	New Bern
*Patterson, Reid	Haskins
*Payne, R. L.	Monroe
Peck, E. J.	Hot Springs
Peeler, C. N.	Charlotte
Peete, C. H.	Warrenton
Pegram, R. W. S.	Canton
Pemberton, W. D.	Concord
*Pendleton, A. S.	Raleigh
Penny, E. M.	Louisburg
Penny, J. A. J.	Neuse
*Pepper, J. K.	Winston
Perkins, D. R.	Marshville

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*Perkins, F. E.	Henderson
Perry, M. P. (Hon.)	Macon
*Person, E. C.	Pikeville
Person, H. M.	Goldsboro
*Person, J. B.	Selma
*Person, T. E.	Stantonsburg
Peterson, C. A.	Spruce Pine
Peters, W. A.	Elizabeth City
Petrie, R. W.	Charlotte
Petteway, G. H.	Charlotte, R. F. D.
Pfohl, S. F.	Winston-Salem
Pharr, T. F. (Hon.)	Harrisburg
Pharr, W. W.	Charlotte
Phifer, E. W.	Morganton
Phillips, J. J.	Tarboro
Phillips, M. D.	Dalton
Pickett, J. A.	Burlington, R. F. D. 1
Pittman, R. L.	Fayetteville
Pitts, I. W.	Lenoir
*Pope, H. T.	Lumberton
Powell, H. H.	Stantonburg
*Powell, R. A.	Fayetteville
Powers, J. B. Jr.	Wake Forest
Pressley, G. W.	Charlotte
Pressley, J. M.	West Hill
Price, H. L.	Locust
Price, S. B.	Weldon
Pridgen, C. L.	Wilmington
Primrose, R. S.	New Bern
Prince, D. M. (Hon.)	Laurinburg
*Pritchard, A. T.	Asheville
Pritchard, J. L.	Windsor
Puett, B. V.	Dallas
Purdy, J. J.	Oriental
Purefoy, G. W.	Asheville
Putney, R. H.	Elm City
*Query, R. Z.	Charlotte, R. F. D. 3
Quickel, T. C.	Gastonia
Quillen, E. B.	Rocky Mount
Quinn, Robt. F.	Magnolia
Raby, J. C.	Leggett
Rakestraw, A. F.	Asheville
Rainey, W. T.	Salisbury
*Ramseur, G. A.	China Grove
Rankin, P. L.	Mt. Gilead
Rankin, S. W.	Concord
*Rankin, W. S.	Raleigh
Ranson, R. L.	Pineville, R. F. D. 15
Ray, Hickman	Rocky Mount
*Ray, J. B.	Leaksville
*Ray, John E. Jr.	Raleigh
*Ray, O. L.	Raleigh
Reaves, C. T.	Greensboro
*Reaves, W. P.	Greensboro
Reece, J. M.	Elkin
Reed, D. H.	Lucama
Reedy, Howard	Rowland
Reeves, A. F.	Asheville
*Register, E. C.	Charlotte
*Register, F. M.	Tillery
Reid, G. P.	Forest City
Reid, J. F.	Concord
*Reid, J. W.	Lowell
*Reid, R. M.	Gastonia
*Reid, W. K.	Charlotte
*Reitzel, C. E.	High Point
*Reives, J. T.	Greensboro
*Reynolds, C. V.	Asheville
Reynolds, T. F.	Canton
Rhem, J. F.	New Bern
Rhodes, J. S.	Williamston
Rhyne, R. E.	Mount Holly
Rich, J. C.	Candler
Ricks, L. E.	Fairmont
*Richardson, W. J.	Greensboro
Riddle, J. B.	Morganton
*Riggsbee, A. E.	Morrisville
*Ring, J. W.	Elkin
*Ringer, P. H.	Asheville
Ritter, F. W.	Moyock
Ritter, W. T.	Moyock
Roberson, Charles	Greensboro
*Roberson, Foy	Durham
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Roberts, Frank	Marshall
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*Robinson, F.	Lowell
Robinson, J. D.	Ivanhoe
*Robinson, M. E.	Goldsboro
*Robinson, W. F.	Mars Hill
Rodgers, W. D.	Warrenton
Rodman, J. C.	Washington
Rodwell, J. R.	Mocksville
Rogers, J. R.	Raleigh
*Rogers, W. A.	Franklin
*Root, A. S.	Raleigh
Rose, A. H.	Smithfield
Rose, A. S.	Fayetteville
*Ross, G. H.	East Durham
Ross, O. B.	Charlotte
Rosser, R. G.	Broadway
*Rowe, H. B.	Mount Airy
Rowe, R. H.	Bessemer City
Royall, B. F.	Morehead City
*Royall, M. A.	Elkin
*Royster, H. A.	Raleigh
Royster, S. S.	Shelby
Royster, T. H.	Tarboro

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Rozier, R. G.	Lumberton
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Russell, J. M.	Canton
Saddler, R. C.	Whiteville
Saine, J. W.	Lincolnton
Saliba, John	Elizabeth City
*Saliba, M. M.	Wilson
Salley, E. M.	Saluda
*Sanderford, J. F.	Creedmoor
*Saunders, J. H.	Williamston
*Sawyer, C. W.	Elizabeth City
Sawyer, Jas.	Asheville
*Sawyer, W. W.	Elizabeth City
Schallert, P. O.	Winston-Salem
*Schaub, O. P.	Winston-Salem
Schonwald, J. L. (Hon)	Wilmington
*Schoonover, R. A.	Greensboro
Schubert, J. L.	Washington
Scott, C. L.	Sanford
*Sevier, D. E.	Asheville
*Sevier, J. T.	Asheville
Sexton, C. H.	Dunn
Shafer, I. E.	Gold Hill
Shaffner, T. F. Sr. (Hon.)	Winston-Salem
Shamburger, J. B.	Star
Shaw, W. D.	Wagram
Sherrill, C. L.	Statesville
Shields, H. B.	Carthage
*Shore, C. A.	Raleigh
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*Shull, J. R.	Cliffside
Shupps, G. W.	Newton
*Sidbury, J. B.	Wilmington
Sigmon, F. G.	Spencer
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*Sikes, G. T. (Hon.)	Grissom
Siler, F. L.	Franklin
Simmons, J. O.	Charlotte
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Sink, C. S.	North Wilkesboro
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Slate, W. C.	Walnut Cove
Sloan, Henry	Ingold
Sloan, H. L.	Lincolnton
Sloan, J. M.	Gastonia
Slocumb, R. B.	Wilmington
Sloop, E. H.	Crossnore
Sloop, Mary M.	Crossnore
Smart, J. B.	Forest City
Smart, J. B.	Haysville
Smith, A. T.	Greensboro
Smith, B. R.	Asheville
Smith, F.	Linden
Smith, G. A.	Black Creek
*Smith, J. B.	Pilot Mountain
Smith, J. McN.	Rowland
Smith, O. F.	Scotland Neck
Smith, Owen	Asheville
Smith, R. A. (Hon.)	Goldsboro
Smith, R. W.	Hertford
Smith, W. F.	Chadbourn
Smith, W. H.	Mount Olive
Smithwick, J. E.	Jamesville
Smoot, J. E.	Concord
*Smoot, M. L.	Fayetteville
Snipes, E. P.	Jonesboro
Sodelson, G. H.	Charlotte
Solomons, L. R.	Winston
Somers, L. P.	Osbornville
*Sorrell, L. P.	Raleigh
Spainhour, E. H.	Winston
Spears, W. P.	Cooleemee
Speight, J. W.	Roper
Speight, R. H. Sr. (Hon.)	Whitakers, R. F. D. 1
Spencer, F. B.	Salisbury
*Spencer, W. O.	Winston
*Spicer, John	Goldsboro
*Spicer, Richard W.	Goldsboro
Spoon, O. A.	Greensboro
Spright, J. A.	Rocky Mount
Spright, R. H.	Rocky Mount
Sprinkle, C. N.	Mars Hill
*Spruill, J. L.	Columbia
*Spud, John	Durham
*Squires, J. W.	Charlotte
Stack, R. E.	Bakersville
Staley, S. W.	Rocky Mount
Stamps, Thomas	Lumber Bridge
Stancell, W. W.	Raleigh
*Stanton, D. A.	High Point
Staton, L. L.	Tarboro
Steele, E. S.	Hickory
Stevens, J. A.	Clinton
Stevens, M. L.	Asheville
Stevens, S. A.	Monroe
Stevens, W. L.	Shiloh
*Stewart, H. D.	Monroe
Stewart, J. J.	Conover
Sterrett, J. R.	West Durham
Stokes, J. E.	Salisbury
Storie, J. G.	Proctor
Stovall, Arnold	Wilmington
Street, M. E.	Glendon
*Strickland, E. F.	Winston
Strickland, J. A.	Zebulon

Name.	*Address.*
Strickland, J. T.	Nashville
Strickland, W. J.	Moncure
*Stringfield, S. L.	Canton
Strong, C. M.	Charlotte
Strong, W. M.	Charlotte
Strosnider, C. F.	Wilmington
Stroud, O. B.	Ore Hill
Summer, T. W.	Fletcher
*Summerell, E. N. (Hon.)	China Grove, R. F. D.
Summers, J. W.	Charlotte
Summers, C. L.	Winston
Summey, Thos. J.	Rosman
Sumner, W. J.	Randleman
Sutton, C. A.	Manteo
Sutton, C. W.	Richlands
Sutton, J. R.	Elk Park
*Sutton, W. G.	Seven Springs
*Swann, J. F.	Semora
*Sweaney, John	Leaksville
Swett, W. P.	Southern Pines
Swindell, C. L.	Wilson
Swindell, W. L.	Scranton
Tankersley, J. W.	Greensboro
Tate, C. S.	Ramseur
Tate, W. C.	Banners Elk
Tayloe, A. K.	Washington
*Tayloe, D. T.	Washington
Tayloe, Josh	Washington
*Taylor, F. R.	High Point
*Taylor, I. M. (Hon.)	Morganton
*Taylor, J. T.	Madison
Taylor, M. M.	Nebo
Taylor, T. G.	Leaksville
*Taylor, W. L.	Stovall
Taylor, W. S.	Mount Airy
Teague, L. H.	Chapel Hill
*Teague, R. J.	Durham
*Templeton, J. M.	Cary
Tennent, G. S.	Asheville
Terrell, A. J.	Black Mountain
Terry, P. R.	Asheville
Terry, W. C.	Hamlet
*Thaxton, B. A.	Roxboro
Thigpen, W. J.	Tarboro
Thomas, G. G. (Hon.)	Wilmington
*Thomas, W. N.	Oxford
Thompson, A. F.	Troy
*Thompson, Cyrus	Jacksonville
Thompson, C. D.	Lincolnton
Thompson, Fred.	Pine Bluff
*Thompson, J. B.	Bostic, R. F. D. 1
*Thompson, J. R.	Wananish
Thompson, N. A.	Lumberton
*Thompson, S. R.	Charlotte
*Thompson, S. W.	Neuse
Thompson, W. A.	Rutherfordton
Tidwell, J. E.	Andrews
Tilson, J. C.	Marshall
Trantham, H. L. (Hon.)	Salisbury
Trippe, C. M.	Charlotte
Troxler, R. M.	Burlington
*Tucker, J. H.	Charlotte
Tull, Henry (Hon.)	Kinston
Turlington, H. C.	Cooper, R. F. D.
Turner, J. M.	North Wilkesboro
Turner, J. P.	Greensboro
Tuttle, A. F.	Spray
*Tuttle, R. G.	Walnut Cove
Twitty, J. C.	Rutherfordton
Tyson, T. D.	Pleasant Garden
*Uhls, Russell T.	Hester
Underhill, H. P.	Wendell
Underwood, O. E.	Roseboro
*Upchurch, C. G.	Apex, R. F. D. 3
*Upchurch, R. T.	Henderson
Utley, H. H.	Benson
*Valk, A. deT.	Winston
*VanPoole, C. M. (Hon.)	Salisbury
Vaughn, J. E.	Rich Square
Vernon, J. W.	Morganton
Vestal, W. J.	Lexington
Vick, G. D.	Selma
VonRuck, K.	Asheville
VonRuck, S. H.	Asheville
*Wakefield, H. A.	Charlotte
Wakefield, W. H.	Charlotte
Walker, C. E.	Charlotte
*Walker, H. D.	Elizabeth City
Walker, J. B.	Gibsonville
*Walker, L. A.	Burlington
Walker, W. E.	Burlington
Wall, R. L.	Winston
Wallace, J. W.	Concord
Wallis, W. J.	Brevard
Walters, C. M.	Union Ridge
*Ward, J. E.	Robersonville
Ward, V. A.	Robersonville
Ward, W. H. (Hon.)	Plymouth
Warlick, E. S.	Morganton
Warren, A. J.	Hillsboro
*Warren, R. F.	Prospect Hill
Warren, R. L.	Dunn
*Warren, W. E.	Williamston
Watkins, F. B.	Morganton
*Watkins, G. S.	Oxford

Name.	*Address.*
Watson, J. B.	Raleigh
*Watson, Leon	Broadway
Watts, R. E.	Oriental
*Way, J. H.	Waynesville
Weaver, H. B. (Hon.)	Asheville
*Weaver, W. J.	Asheville
Webb, B. G.	Andrews
*Webb, L. H.	Chapel Hill
*Webb, S. E.	Draper
Webb, W. P.	Rockingham
Wellborn, W. R.	Elkin
Wessell, J. C.	Wilmington
West, A.	Walstonburg, R. F. D.
West, G. H.	Newton
*West, Lewis M.	Raleigh
West, R. M.	Salisbury
West, T. M.	Fayetteville
*Wharton, L. D.	Smithfield
*Whisnant, A. M.	Charlotte
Whitaker, A. C.	Julian
Whitaker, F. A.	Kinston
*Whitaker, F. S.	Kinston
Whitaker, H. H.	Nashville
Whitaker, J. D.	Raleigh
Whitaker, R. A. (Hon.)	Kinston
*Whitaker, R. B.	Whiteville
White, J. W.	Wilkesboro
Whitehead, J. P.	Rocky Mount
Whitehead, J. W. (Hon.)	Salisbury
Whitfield, W. C.	Grifton
Whitley, D. P.	Albemarle
Whittington, J. B.	Winston
Whittington, W. P. (Hon.)	Asheville
Whittington, W. W.	Snow Hill
Wilcox, J. W.	Laurel Hill
*Wilkerson, C. B.	Apex
*Wilkerson, C. E.	Randleman
Wilkerson, T. E.	Raleigh
Watkins, R. B.	Raeford
Wilkins, S. A.	Dallas
*Williams, A. F.	Wilson
*Williams, B. B.	Greensboro
Williams, C. B.	Elizabeth City
Williams, J. A.	Greensboro
Williams, J. D.	Guilford
Williams, J. H. (Hon.)	Asheville
Williams, J. L.	Union Mills
Williams, J. M.	Warsaw
Williams, J. W.	Everetts
Williams, R. C.	Wallace
*Williams, T. G.	Conetoe
Willingham, B. J.	Wilmington
Willis, B. C.	Rocky Mount
*Willis, W. M.	Morehead City
Willson, R. P.	Newton Grove
Willson, T. H.	Newton Grove
Wilmerding, W. E.	Selma
Wilson, A. R. (Hon.)	Greensboro
Wilson, F. G.	Gastonia
Wilson, N. G.	Summerfield
Wilson, J. E.	Canton, R. F. D.
Wilson, R. B.	Newton Grove
Wilson, W. E.	Sherrill's Ford
Wilson, W. P.	Madison
Wimberly, G. L.	Rocky Mount
Winstead, John	Nashville
Wiseman, C. B.	Henrietta
Wishart, W. E.	Charlotte
Withers, J. J.	Davidson
Witherspoon, B. J.	Charlotte
Woltz, J. L.	Mount Airy
Wood, E. J.	Wilmington
Woodard, A. G.	Princeton
*Woodard, C. A.	Durham
*Woodard, G. B.	Kenly
*Wooding, C. E.	Winston
Woodson, C. W.	Salisbury
Wooten, A. M.	Pinetops
Wordsworth, W. H.	Concord
*Wrenn, Frank	Siler City
*Wright, J. B.	Raleigh
Wright, T. H.	Charlotte
Wyatt, Wortham	Winston
*Yarborough, R. F.	Louisburg
Yokeley, R. V.	Lexington
York, H. B.	Williamston
Young, J. J.	Clayton
Young, L. B.	Rolesville
Yow, I. A.	Georgeville

LIST OF MEMBERS FOR 1916, BY COUNTIES

NOTE.—Every physician in the State whose name we could secure has had an opportunity to supply correct information as to his name, post-office, academic and medical education, date of State license, and date the State Society was joined. A few did not take advantage of the opportunity, however. Any one finding an error should report it to the secretary of the society, so that the report for next year will be correct.

ALAMANCE COUNTY SOCIETY.

Name and Address.	*Licensed.*	*Joined State Society.*
President, T. S. Faucette, Burlington	1893	1916
Balt. M. C., 1892.		
Secretary, J. J. Barefoot, Graham	1907	....
Univ. of N. C., 1907.		
Anderson, C. A., Burlington	1893	1896
P. and S., Balt., 1901.		
Goley, W. R., Graham	1885	1893
P. and S., Balt., 1885.		
McPherson, C. W., Burlington	1910	....
Univ. of Md., 1910.		
Page, J. W., Burlington		
P. and S., Balt.		
Pickett, J. A., Burlington, R. F. D. 1	1894	1904
Univ. of Nashville, 1894.		
Troxler, R. M., Burlington	1914	1915
Univ. of Md., 1914.		
Walker, L. A., Burlington	1899	1904
Univ. Coll. of Med., Va., 1898.		
Walker, W. E., Burlington	1903	1903
Med. Coll. of Va., 1903.		

ALEXANDER COUNTY SOCIETY.

(SEE IREDELL-ALEXANDER.)

ALLEGHANY COUNTY SOCIETY.

President	....	....
Secretary	....	....
Choate, B. O., Sparta	1908	1910
Med. Coll. of Va., 1908.		
Smith, H. T., Anna	1908	1915
Med. Coll. of Va., 1908.		

AVERY COUNTY SOCIETY.

President, T. J. Proffit, Elk Park	1903	....
Louisville Med. Coll., 1902.		
Secretary, Mary M. Sloop, Crossnore	1906	1913
Woman's Med. Coll. of Pa., 1906.		
Buchanan, C. L., Plumtree	1910	1911
Tenn. Med. Coll., 1910.		
Burleson, W. B., Cranberry	....	....
Hodges, J. M., Cranberry	1906	....
Univ. of Md., 1904.		
Proffit, Myrtle, Elk Bend	....	....
Sloop, E. H., Crossnore	1905	1909
N. C. Med. Coll., 1905; Jeff. Med. Coll., 1908.		

Name and Address.	*Licensed.*	*Joined State Society.*
Sutton, J. R., Elk Park Univ. of the South, 1904.	1909	1911
Tate, W. C., Banner's Elk Tenn. Med. Coll., 1908.	1909	1912

BEAUFORT COUNTY SOCIETY.

President, J. C. Rodman, Washington Bellevue Med. Coll., 1892.	1892	1895
Secretary, H. W. Carter, Washington Univ. of Va., 1895.	1895	1910
Hunter, H. H., Pinetown Med. Coll. of Va., 1901.	1901	1904
Jackson, C. C., Yeatesville P. and S., Balt., 1893.	1893	....
Kafer, Oswald O,, Edward Univ. of Md., 1905.	1905	1916
Nicholson, J. L., Washington Univ. of N. Y., 1875.	1880	....
Nicholson, J. T., Bath P. and S., Balt., 1885.	1885	1885
Nicholson, P. A., Washington P. and S., Balt., 1889.	1889	1890
Nicholson, S. T., Washington P. and S., Balt., 1881.	1885	1902
Potter, W. T., Edward Med. Coll. of Va., 1910.	1910	1910
Schubert, J. L., Washington	....	....
Tayloe, A. K., Washington Univ. Coll. of Med., Va., 1897.	1896	1896
Tayloe, D. T., Washington Bellevue Med. Coll., 1885.	1885	1885
Tayloe, Josh., Washington Bellevue Med. Coll., 1892.	1892	....

BERTIE COUNTY SOCIETY.

President, P. C. Jenkins	....	....
Secretary, J. L. Pritchard, Windsor P. and S., Balt.	1906	1907
Evans, L. B., Windsor Univ. Coll. of Med., Va., 1900.	1900	1904

BLADEN COUNTY SOCIETY.

President, A. B. Holmes, Council Jefferson Med. Coll., 1910.	1910	....
Secretary, R. S. Cromartie, Garland	....	....
Bullard, G. F., Elizabethtown N. C. Med. Coll., 1915.	1915	1916
Clark, E. S., Clarkton M. C. of Va., 1914.	1914	....
Clark, G. L., Clarkton Univ. of N. Y., 1876.	1900	1904
Lucas, W. H. G., White Oak Univ. of Phila., 1870.	....	1875

BUNCOMBE COUNTY SOCIETY.

President, C. L. Minor, Asheville Univ. of Va., 1888.	1895	1895

Name and Address.	*Licensed.*	*Joined State Society.*
Secretary, G. S. Tennant, Asheville	1894	1894
N. C. Med. Coll., 1894.		
Adams, J. L., Asheville	1910	1913
Jefferson Med. Coll., 1910.		
Ambler, C. P., Asheville	1890	1891
West. Reserv., 1889.		
Anderson, J. G., Asheville	1906	1908
Univ. of N. C., 1906.		
Archer, I. J., Black Mountain	1905	1906
Northwestern, 1896.		
Baker, W. E., Arden	1915	1916
Chattanooga M. C., 1908.		
Ballard, A. M., Asheville	1889	1904
Harvard, 1868.		
Battle, Geo. C., Asheville	1912	1912
Univ. of Md.		
Battle, S. W., Asheville	1887	1887
Bellevue Med. Coll., N. Y., 1875.		
Briggs, W. H., Asheville	1901	1903
Yale, 1897.		
Brookshire, H. G., Leicester	1905	1906
N. C. Med. Coll., 1905.		
Brownson, W. S., Asheville	1885	1896
Univ. of N. Y., 1878.		
Buckner, J. M., Swannanoa	1909	1912
Univ. of N. C., 1908.		
Buckner, R. G., Asheville	1907	1908
Univ. of Ark., 1897.		
Callaway, A. W., Asheville	1899	1904
Chicago Med. School; Harvard Med. School, 1895.		
Cheeseborough, T. P., Asheville	1891	1899
Univ. of N. Y., 1891.		
Clemenger, F. J., Asheville	1903	1903
Univ. of Denver, Med. Dept., 1902.		
Cocke, C. H., Asheville	1912	1913
Cornell, 1905.		
Cocke, J. E., Asheville	1905	1905
Louisville Med. Coll., 1905.		
Colby, C. DeW., Asheville	1909	1909
Army Med. Sch., 1895; U. of Mich., Med Dept., 1893		
Costello, M. J., Asheville	1909	1911
Medico-Chirurgical, Phila., 1896.		
Cotton, C. E., Black Mountain	1901	1901
Northwestern, 1889.		
Crawford, J. M., Asheville	1915	1916
Atlanta M. C., 1884.		
Denchfield, A. L., Asheville	1914	1915
U. and Bel. H., N. Y., 1905.		
Dunn, W. L., Asheville	1900	1900
Univ. of Mich., 1891.		
Eckel, O. F., Asheville	1907	1908
Med. Coll. of S. C., 1906.		
Elias, L. W., Asheville	1906	1906
Columbia Univ., 1903.		
Fletcher, M. H. (Hon.), Asheville	1881	1881
Bellevue Med. Coll., 1881.		
Frazer, H. T., Asheville	1908	1908
Coll. Phys., N. Y., 1901.		
Gardener, G. D., Asheville	1908	1908
Lincoln Memorial, 1908.		

Name and Address.	*Licensed.*	*Joined State Society.*
Gill, J. N., Weaverville	1894	1892
Vanderbilt Univ., 1889.		
Glenn, E. B., Asheville	1896	1899
Jefferson Med. Coll., 1896.		
Greene, J. B., Asheville	1910	1911
Univ. of Va., 1893.		
Griffith, F. W., Asheville	1911	1912
Johns Hopkins, 1906.		
Harris, I. A. (Hon.), Alexander	1885	1881
Jefferson Med. Coll., Phila.		
Herbert, W. P., Asheville	1910	1911
Univ. of Va., 1907.		
Hollyday, W. M., Asheville	1914	1915
Univ. of Md., 1908.		
Honnicutt, W. J., Asheville	1908	1908
Univ. of Tenn., 1895.		
Huston, J. W., Asheville	1912	1913
Rush, Chicago, 1904.		
Johnson, Alice E., Asheville	1906	1907
Woman's Med. Coll., Pa., 1905.		
Jordan, C. S., Asheville	1891	1899
Univ. of N. Y., 1899.		
Knoefel, A. E., Black Mountain	1914	....
Univ. of Louisville, 1893.		
Lynch, J. M., Asheville	1912	1913
Univ. of Md., 1904.		
McBrayer, L. B., Sanatorium	1891	1899
Louisville Med. Coll., 1889.		
McCracken, C. M., Fairview	1896	1904
N. C. Med. Coll., 1896.		
Meriwether, B. M., Asheville	1915	1916
Univ. of Louisville, Ky., 1915.		
Morris, E. R., Asheville	1896	1899
Louisville Med. Coll., 1896.		
Orr, C. C., Asheville	1904	1907
Univ. of Md., 1904.		
Paquin, Paul, Asheville	1899	1899
Univ. of Mo., 1887.		
Pritchard, Arthur T., Asheville	1905	1906
Jefferson Med. Coll., Phila., 1905.		
Purefoy, G. W., Asheville	1884	1904
Jefferson Med. Coll., Phila., 1876.		
Rakestraw, C. M., Asheville	1914	1915
Med. Coll. of O., 1894.		
Reeves, A. F., Asheville	1909	1910
George Washington Univ., 1906.		
Reynolds, C. V., Asheville	1895	1896
Univ. of N. Y., 1895.		
Rich, J. C., Candler	1908	1908
Univ. of Nashville, 1908.		
Ringer, P. H., Asheville	1906	1907
P. and S., N. Y., 1904.		
Russell, E. R., Asheville	1895	1898
Univ. of Md., 1895.		
Sawyer, Jas., Asheville	1897	1916
Bell. H., N. Y., 1897.		
Sevier, D. E., Asheville	1895	1899
Jefferson Med. Coll., Phila., 1895.		
Sevier, J. T., Asheville	1895	1899
Jefferson Med. Coll., Phila., 1895.		

Name and Address.	*Licensed.*	*Joined State Society*
Smith, B. R., Asheville Jefferson Med. Coll., Phila., 1911.	1913	1913
Stevens, M. L., Asheville Balt. Med. Coll., 1891.	1892	1893
Terrell, A. J., Black Mountain Univ. of N. C., 1908.	1908	1909
Terry, P. R., Asheville George Washington Univ., 1906.	1912	1913
VonRuck, K., Asheville Univ. of Tubingen, 1878.	1889	1889
VonRuck, S. H., Asheville Bellevue Med. Coll., 1899.	1899	1902
Weaver, H. B. (Hon.), Asheville Washington Univ., Balt., Md., 1872.	1881	1881
Weaver, W. J., Asheville Jefferson M. C., of Phila., 1898.	1897	1915
Whittington, W. P. (Hon.), Asheville P. and S., Balt., 1882.	1882	1882
Williams, John Hay (Hon.), Asheville Med. Dept., Iowa S. Univ., 1863.	1881	1881

BURKE COUNTY SOCIETY.

President, Jas. R. Anderson, Morganton Tulane Univ., 1882.	1885	1903
Secretary, T. V. Goode, Jr., Morganton Univ. Coll. of Med., Va., 1912.	1912	1916
Anderson, P. V., Richmond, Va. Univ. of Va., 1904.	1904	1906
Gayle, E. M., Morganton Univ. of Va., 1902.	1902	1912
Griffin, W. R., Morganton Jefferson Med. Coll., Phila., 1910.	1910	1913
Hall, J. K., Richmond, Va. Jefferson Med. Coll., 1904.	1906	1906
Hennessee, E. A., Glen Alpine U. S. Grant Univ., 1900.	1902	1904
Houck, Albert, Morganton P. and S., Balt., 1884.	1891	1893
Long, B. L., Glen Alpine N. C. Med. Coll., 1913.	1913	1914
McCampbell, John Balt. Med. Coll., 1894.	1895	1899
Moore, D. B., Drexel Univ. Coll. of Med., Va., 1913.	1913	1915
Phifer, E. W., Morganton N. C. Med. Coll., 1901.	1902	1904
Riddle, J. B., Morganton Vanderbilt Univ., 1898.	1904	1904
Taylor, Isaac M. (Hon.), Morganton P. and S., N. Y., 1882.	1883	1883
Vernon, J. W., Morganton Jefferson Med. Coll., Phila., 1909.	1909	1913
Warlick, E. S., Morganton Vanderbilt Univ., 1881.	1881	1903
Watkins, F. B., Morganton Jefferson Med. Coll., Phila., 1907.	1907	1910

CABARRUS COUNTY SOCIETY.

Name and Address.	*Licensed.*	*Joined State Society.*
President, M. A. Foil, Mount Pleasant Jefferson Med. Coll., 1891.	1891	1908
Secretary, S. E. Buchanan, Concord Univ. of Md., 1912.	1912	1914
Black, J. C., Harrisburg Univ. of Md., 1886.	1886	1891
Brandon, W. R., Kannapolis Univ. of Md., 1914.	1914	1916
Bunn, J. J., Mount Pleasant N. C. Med. Coll., 1912.	1913	1915
Burleson, L. N., Concord Univ. of Md., 1891.	1891	1894
Caldwell, D. G. (Hon.), Concord Univ. of Md., 1885.	1885	1885
Cauble, H. H., Kannapolis N. C. Med. Coll., 1907.	1907	1910
Earnhardt, J. M., Mount Pleasant Univ. Coll. of Med., Va., 1913.	1914	1915
Flowe, R. Frank, Kannapolis N. C. Med. Coll., 1913.	1914	1916
Flows, J. W., Kannapolis N. C. Med. Coll., 1898.	1903	1903
Gouger, G. J., Concord, R. F. D. Univ. of Md., 1891.	1891	1899
Grier, S. A., Harrisburg Jefferson Med. Coll., 1879.	1885	1904
Hartsell, J. A., Concord Jefferson Med. Coll., 1912.	1914	1916
King, R. M., Concord Jefferson Med. Coll., Phila., 1903.	1903	1905
McFayden, P. R., Concord Med. Coll. of Va., 1901.	1901	1904
Patterson, John A., Concord Univ. Coll. of Med., Va., 1911.	1911	1912
Pemberton, W. D., Concord Univ. of Md., 1887.	1887	1887
Pharr, T. F. (Hon.), Harrisburg Bellevue Med. Coll., 1877.	1881	1881
Rankin, S. W., Concord Jefferson Med. Coll., Phila., 1912.	1912	1914
Reed, J. F., Concord Univ. of N. Y., 1893.	1909	1912
Smoot, J. E., Concord Balt. Med. Coll., 1893.	1894	1902
Wadsworth, W. H., Concord Jefferson Med. Coll., Phila., 1911.	1913	1913
Wallace, J. W., Concord N. C. Med. Coll., 1907.	1907	1908
Yow, I. A., Georgeville N. C. Med. Coll., 1906.	1907	1910

CALDWELL COUNTY SOCIETY.

President, B. G. Flowers, Granite Falls	1884	1904
Secretary, A. A. Kent, Lenoir Jefferson Med. Coll., Phila., 1885.	1885	1894
Carter, G. H., King's Creek Univ. of N. Y., 1877.	1899	1904

Name and Address.	*Licensed.*	*Joined State Society.*
Goodman, A. B., Lenoir	1897	1904
N. C. Med. Coll., 1898.		
Pitts, I. W., Lenoir	1901	1911
Univ. of the South, Med. Dept., 1902.		
Storie, J. G., Proctor	1898	1908
Tenn. Med. Coll., 1898.		
Wilson, C. L., Lenoir	1903	1905
U. S. Grant Univ., 1903.		

CAMDEN COUNTY SOCIETY.

(See Pasquotank-Camden-Dare.)

CARTERET COUNTY SOCIETY.

President, K. P. B. Bonner, Morehead City	1905	1905
Med. Coll. of Va., 1905.		
Secretary,	....	....
Ball, M. W., Newport	1911	1913
Atlanta School of Med. 1909		
Davis, J. J., Beaufort	1891	....
Univ. of Md., 1891.		
Duncan, C. L., Beaufort	1902	1904
Univ. of Md., 1902.		
George, Davis S., Marshallburg	1903	1903
N. C. Med. Coll., 1903.		
McCuiston, A. M., Atlantic	1911	....
N. C. Med. Coll., 1911.		
Maxwell, C. S., Beaufort	1899	1903
Univ. of the South, 1901.		
Royall, B. F., Morehead City	1909	1909
Jefferson Med. Coll., Phila., 1909.		
Willis, W. M., Morehead City	1915	....
Med. Coll., Va., 1914.		

CASWELL COUNTY SOCIETY.

President	....	....
Secretary, S. A. Malloy, Yanceyville	1898	1903
Ky. Sch. Med., 1897.		

CATAWBA COUNTY SOCIETY.

President, H. C. Menzies, Hickory	1894	1899
N. C. Med. Col., 1894.		
Secretary, G. W. Shupps, Newton	1911	1915
U. of Md., 1910.		
Bandy, W. G. Newton	....	....
Campbell, J. R., Newton	1885	1898
U. of Md., 1876.		
Herman, F. L., Conover	1892	1892
Louisville M. C., 1893.		
Housacker, Charles G., Hickory	1913	1915
N. C. Med. Col., 1913.		
Kluttz, P. J., Newton	1885	1891
U. of N. Y., 1885.		
Long, T. W., Newton	1885	1915
N. Y. U., 1885.		
Shuford, J. H., Hickory	1902	1902
Mich. U., 1901.		

Name and Address.	*Licensed.*	*Joined State Society.*
Steele, E. S., Hickory Med. Col. Va., 1913.	1913	1915
Stewart, J. J., Conover N. C. Med. Col., 1904.	1904	1915
West, G. H., Newton N. Y. U., 1873.	1880	1880
Wilson, W. E., Sherrill's Ford Louisville M. C., 1886.	1886	1904

CHATHAM COUNTY SOCIETY.

President, B. H. Hackney, Bynum Tulane Univ., 1911.	1911	1912
Secretary, H. T. Chapin, Pittsboro Louis. Med. Coll., 1886.	1886	1886
Burns, W. M., Goldston P. & S., Balt., 1878.	1885	....
Denson, H. A., Bennett Coll. P. & S., Indianapolis, Ind., 1887.	1913	1887
Farthing, L. E., Pittsboro Univ. of N. C., 1906.	1906	1906
Laster, P. D., Moncure, R. F. D. 1 Louis. Med. Coll., 1875.	1885	1890
McManus, W. L., Bonlee Atlanta School of Med., 1906.	1912	....
Milliken, Jas., Moncure Jeff. M. C. of Phila., 1915.	1915	....
Strickland, W. J., Moncure Univ. of Md., 1890.	1890	....
Stroud, O. B., Ore Hill P. and S., Balt., 1877.	1888	1892
Upchurch, C. G., Apex, R. F. D. 3 Univ. of Md., 1906.	1907	....

CHEROKEE COUNTY SOCIETY.

President, W. C. Morrow, Andrews Atlanta School of Med., 1907.	1909	1909
Secretary, J. E. Tidwell, Andrews Chattanooga Med. Coll.	1914	1915
Adams, N. B., Murphy Tenn. Med. Coll., 1896.	1909	1909
Heighway, S. C., Murphy Med. Coll. of Ohio, 1885.	1898	1898
Hill, J. N., Murphy Univ. of Louisville, 1909.	1909	1909
McKaig, F. T., Andrews Alabama Medical Coll., 1890.	1906	1906
Meroney, B. B., Murphy Gate City Med. Coll., Texas, 1906.	1908	1908
Orr, C. V., Andrews Univ. of Louisville, 1909	1909	1909
Webb, B. G., Andrews Louisville Med. Coll., 1885.	1885	1885

CHOWAN-PERQUIMANS COUNTY SOCIETY.

President, H. M. S. Cason, Edenton Univ. of Md., 1899.	1899	1899
Secretary		

Name and Address.	*Licensed.*	*Joined State Society.*
Cox, Thos. A., Hertford Univ. of Md., 1892.	1907	....
Dillard, Richard, Edenton (Hon.) Jeff. Med. Coll., 1879.	1880	1880
Smith, R. W., Hertford Univ. of Md., 1892.	1892	....

CLAY COUNTY SOCIETY.

(See Macon-Clay.)

CLEVELAND COUNTY SOCIETY.

President, E. B. Lattimore Bellevue Med. Coll., 1898.	1896	1904
Secretary, W. F. Mitchell, Shelby Univ. of Md., 1890.	1900	1904
Aydlette, J. P., Earls Ky. Univ., 1901.	1903	1904
Champion, C. O., Mooresboro Atlanta Med. Coll., 1887.	1902	1904
Ellis, R. C., Shelby Balt. Univ. School of Med., 1886.	....	1904
Gold, T. B., Lawndale Charlotte Med. Coll., 1911.	1911	1914
Hamrick, T. G., Shelby P. and S., Balt., 1895.	1895	1904
Houser, E. A., Fallston Balt. Univ., 1902.	1902	1904
Lee, L. V., Lattimore Atlanta Med. Coll., 1894.	1897	1904
McBrayer, T. E., Shelby P. & S., Balt., 1879.	1885	1904
Oats, Geo., Grover Univ. of Louisville, 1871	1894	....
Palmer, B. H., Shelby Louisville Med. Coll., 1896.	1898	1904
Royster, S. S., Shelby Tenn. Med. Coll., 1890.	1896	1904

COLUMBUS COUNTY SOCIETY.

President, J. M. Northington, Boardman Medical Coll. of Va., 1905.	1909	1910
Secretary, R. C. Sadler, Whiteville	....	....
Floyd, A. G., Fair Bluff Univ. of Md., 1885.	1887	1904
Floyd, L. D., Cerro Gordo N. C. Med. Coll., 1911	1911	1916
Johnson, Floyd, Cerro Gordo Memphis H. M. C., 1903.	1903	1909
Maxwell, H. B., Whiteville Univ. of Md., 1902	1902	1902
Moore, T. V., Acme Balt. Med. Coll., 1901.	1901	1901
Munt, H. F., Boardman M. C. of Va., 1911	1914	....
Smith, W. F., Chadbourn N. C. Med. Coll., 1904	1904	1904
Thompson, J. R., Wananish	....	....
Whitaker, R. B., Whiteville Univ. Coll. of Med., Va.	1912	1912

CRAVEN COUNTY SOCIETY.

Name and Address.	*Licensed.*	*Joined State Society.*
President, H. M. Bonner, New Bern Med. Coll. of Va., 1897.	1897	....
Secretary, G. A. Caton, New Bern Med. Coll. of Va., 1898.	1898	1904
Duffy, Leinster, New Bern P. and S., Balt., 1889.	1888	1888
Duffy, R. N., New Bern John Hopkins, 1906.	1907	1907
Jones, R. D., New Bern Univ. of Md., 1896.	1897	1897
Patterson, J. F., New Bern Jefferson Med. Coll., Phila., 1906.	1906	1906
Primrose, R. S., New Bern Bellevue Med. Coll., 1889.	1890	1896
Rhem, J. F., New Bern Bellevue Med. Coll., 1894.	1893	1893

CUMBERLAND-HOKE COUNTY SOCIETY.

President, D. G. MacKethan, Fayetteville Univ. Coll. of Med., Va., 1899.	1899	1899
Secretary, M. L. Smoot, Fayetteville Univ. Coll. of Med., Va., 1903.	1903	1904
Averitt, K. G., Cedar Creek Balt. Med. Coll., 1893.	1893	1902
Bullock, T. C., Autryville P. and S., Balt., 1885.	1885	1904
Dickson, A. P., Raeford Univ. of N. Y., 1878.	....	1906
Graham, G. A., Raeford Univ. of N. Y., 1876.	....	1905
Hays, R. B., Fayetteville Univ. of Md., 1906.	1910	1910
Highsmith, J. F., Fayetteville Jefferson Med. Coll., Phila., 1889.	1889	1893
Highsmith, Seavy, Fayetteville Univ. Coll. of Med., Va., 1901.	1901	1901
Jordan, W. S., Fayetteville Univ. of N. C., Med. Dept., 1906.	1906	1906
Juat, Francis, Raeford Univ. of Berne, 1886.	1910	1910
Lilly, J. M., Fayetteville Univ. Coll. of Med., Va., 1903.	1903	1904
MacKethan, J. A., Fayetteville N. C. Med. Coll., 1901.	1901	1901
McNeil, J. W., Fayetteville (Hon.) Bellevue Med. Coll., 1876.	1876	1876
Olive, P. W., Wade P. and S., Balt., 1907.	1907	1908
Pittman, R. L., Fayetteville Univ. of Md., 1906.	1910	1910
Rose, A. S., Fayetteville Univ. Coll. of Med., Va., 1901.	1901	1904
West, T. M., Fayetteville Univ. of Md., 1908.	1910	1910
Wilkins, R. B., Raeford N. C. Med. Coll., 1913.	1913	1913

CURRITUCK COUNTY SOCIETY.

Name and Address.	*Licensed.*	*Joined State Society.*
President, Stuart Mann, Moyock P. and S. Balt., 1895.	1895	....
Secretary, J. D. Maynard, Knott's Island Univ. of N. C., 1908.	1908	1908
Caldwell, W. H., Snowden	....	....
Griggs, W. T., Poplar Branch Univ. of Va., 1896.	1896	1901
Ritter, F. W., Moyock (Hon.)	1885	....
Ritter, W. T., Moyock	....	....

DARE COUNTY SOCIETY.

(See Pasquotank—Camden—Dare.)

DAVIDSON COUNTY SOCIETY.

President, C. A. Julian, Thomasville Louisville Med. Coll., 1888.	1891	1893
Secretary, C. M. Clodfelter, Lexington P. and S. Balt., 1905.	1905	1905
Bowers, M. A., Thomasville Tulane Univ., 1911.	1911	....
Buchanan, E. J., Lexington Univ. of Md., 1892.	1892	1900
Cathell, J. E., Lexington Univ. of Md., 1899.	1902	1910
Hill, D. J., Lexington P. and S. Balt., 1893.	1893	1894
Long, E. F., Denton Med. Coll. of Va., 1909.	1909	1909
Vestal, W. J., Lexington P. and S. Balt., 1883.	1885	1893
Yokeley, R. V., Lexington N. C. Med. Coll., 1911.	1911	....

DAVIE COUNTY SOCIETY.

President, A. B. Byerly, Cooleemee U. C. of M., Va., 1896.	1896	1904
Secretary, W. P. Spears, Cooleemee U. C. of M., Va., 1911.	1911	1912
Hauser, M. C., Advance N. C. Med. Coll., 1914.	1914	....
Martin, W. C., Mocksville P. and S., Balt., 1888.	1888	1904
Nicholson, C. R., Harmony N. C. Med. Coll., 1912.	1912	....
Rodwell, J. R., Mocksville P. and S., Balt., 1895.	1895	1896

DUPLIN COUNTY SOCIETY.

President, J. W. Carroll, Wallace Univ. of Md., 1903.	1903	1903
Secretary, J. M. Williams, Warsaw Univ. of Md., 1902.	1902	1902
Carr, R. L., Rose Hill Balt. Med. Coll., 1907.	1908	....

Name and Address.	*Licensed.*	*Joined State Society.*
Crocker, W. D., Warsaw	1896	1896
Louisville Med. Coll., 1897.		
Landen, J. F., Chinquapin	1905	....
U. C. of Med., Va., 1905.		
Quinn, Robt. F., Magnolia	1913	....
N. C. Med. Coll., 1912.		
Williams, R. C., Wallace	1915	....
Univ. of Md., 1912.		

DURHAM-ORANGE COUNTY SOCIETY.

President, Dr. L. S. Booker, Durham	1910	1910
Univ. Coll. of Med., Va., 1908.		
Secretary, Dr. T. C. Kerns, Durham	1911	1912
Univ. of Pa., 1911.		
Abernethy, E. A., Chapel Hill	1901	1905
Med. Coll., of Va., 1901.		
Adams, C. A., Durham	1892	1892
Coll. of P. and S., Balt., 1892.		
Atkins, M. T., Durham	1915	....
Johns Hopkins, 1907.		
Bitting, N. D., Durham	1907	1908
Jefferson Med. Coll., Phila., 1907.		
Boddie, N. P., (Hon.), Durham	1883	1883
P. and S., Balt., 1883.		
Boone, W. H., Durham	1902	1902
N. C. Med. Coll., 1902.		
Bowling, E. H., Durham	1890	1906
P. and S., Balt., 1891.		
Boyles, A. C., Durham	1887	1887
Univ. of Md., 1887.		
Brooks, B. U., Durham	1905	1905
Univ. of Md., 1905.		
Bullitt, J. B., Chapel Hill	1914	1914
Univ. of Va., 1897.		
Cheatham, Arch, Durham	1888	1888
Univ. of Md., 1888.		
Fassett, B. W., Durham	1899	1903
Balt. Med. Coll., 1898.		
Felts, R. L., Durham	1901	1901
Univ. of Md., 1898.		
Graham, Jos., Durham	1901	1901
Univ. of Pa., 1901.		
Hicks, C. S., Durham	1904	1904
Univ. of Md., 1904.		
Hicks, C. W., Durham	1914	....
Univ. of Md., 1914.		
Hicks, W. N., Durham	1885	1885
Med. Coll. of Va., 1864.		
Hill, C. D., Durham	1912	1912
Univ. of Va., 1888.		
Holloway, R. L., West Durham	1893	1893
Med. Coll., of Va., 1893.		
Johnson, N. M., Durham, (Hon.)	1879	1879
P. and S., Balt., 1877.		
Jordan, A. C., Durham	1885	1904
P. and S., Balt., 1881.		
King, M. N., Durham	1910	1910
Univ. of Md., 1898.		
Lloyd, B. B., Venable	1909	1914
Univ. of N. C., 1909.		

Name and Address.	*Licensed.*	*Joined State Society.*
Lyon, E. H., Bahama	1904	1911
Univ. of Md., 1904.		
MacNider, W. DeB., Chapel Hill	1902	1902
Univ. of N. C., 1902.		
Manning, I. H., Chapel Hill	1899	1899
Long Island College Hospital, Brooklyn, 1897.		
Manning, J. M., Durham	1897	1897
Bellevue Med. Coll., 1897.		
McPherson, S. D., Durham	1903	1903
Univ. of Md., 1903.		
Nichols, R. E., Gorman	1890	1904
Va. Med. Coll., Richmond, Va.		
Olive, W. W., Durham	1907	1908
Univ. of Md., 1906.		
Roberson, Foy, Durham	1909	1912
Jeff. Med. Coll., 1909.		
Ross, G. H., East Durham	1899	1899
Univ. of Tenn., 1899.		
Spud, Jno., Durham	1914	....
Jeff. Med. Coll., 1914.		
Sterrett, J. R., West Durham	1913	....
Univ. Coll. of Med., Va., 1908.		
Sweeney, Jno., Durham	1888	....
P. and S., Balt., 1886.		
Teague, L. H., Chapel Hill	1890	....
Univ. of Md., 1890.		
Warren, A. J., Hillsboro	1914	....
Tulane, 1914.		
Webb, L. H., Chapel Hill	1910	....
Jefferson Med. Coll., Phila., 1910.		
Woodard, C. A., Durham	1904	1907
Univ. Va., 1904.		

EDGECOMBE COUNTY SOCIETY.

President, S. N. Harrell, Tarboro	1897	1897
Univ. of Md., 1897.		
Secretary, J. J. Philips, Tarboro	1905	1905
Columbia Univ., P. and S., N. Y., 1894.		
Baker, J. M., Tarboro, (Hon.)	1879	1879
Univ. of Md., 1879.		
Bass, S. P., Tarboro	1907	1908
Univ. of Va., 1906.		
Green, W. W., Tarboro	1908	1908
Univ. of N. C., 1908.		
Mitchell, G. W., Macclesfield	1913	1913
Univ. Coll. of Med., Richmond, 1908.		
Raby, J. C., Leggett	1911	1911
Univ. Coll. of Med., Va., 1911.		
Royster, T. H., Tarboro	1908	1908
Univ. of Med., Richmond, 1908.		
Speight, R. H., Sr., (Hon.) Whitakers, R. F. D. 1	1875	1875
Univ. of Md., 1870.		
Staton, L. L., Tarboro	1870	1900
Univ. of N. Y., 1870.		
Thigpen, W. J., Tarboro	1900	1900
Jefferson Med. Coll., Phila., 1900.		
Williams, T. G., Conetoe	1910	....
Med. Coll. of Va., 1909.		
Wooten, A. M., Pinetops	1910	1910
Univ. of N. C., 1910.		

FORSYTH COUNTY SOCIETY.

Name and Address.	*Licensed.*	*Joined State Society.*
President, T. W. Davis, Winston-Salem Med. Coll. of S. C., 1898.	1900	1901
Secretary, W. L. Grimes, Winston-Salem Johns Hopkins Med. School, 1910.	1910	1915
Bahnson, H. T., (Hon.), Winston-Salem Univ. of Penna., 1867.	1869	1869
Belton, J. F., Winston-Salem Univ. of Penna., 1914.	1914	1915
Bynum, John, Winston-Salem Univ. of N. Y., 1892.	1892	1900
Bynum, W. H., Germanton Univ. Coll. of Med., Va., 1900.	1900	1900
Carlton, R. L., Winston-Salem Univ. of Md., 1906.	1906	1906
Chaney, T. M., Winston-Salem Univ. of Md., 1906.	1908	1908
Craig, S. D., Winston-Salem Tulane University, 1908.	1908	1911
Dalton, D. N., Winston-Salem Univ. of N. Y., 1881.	1885	1886
Dalton, W. N., Winston-Salem N. C. Med. College, 1904.	1904	1915
Dowdy, G. E., Winston-Salem Univ. of Md., 1909.	1909	1909
Edwards, A. D., Winston-Salem Univ. of Md., 1903.	1904	1904
Fearington, J. P., Winston-Salem Univ. of Md., 1887.	1887	1904
Flynt, S. S., Rural Hall P. and S., Baltimore, 1889.	1890	1906
Gray, E. P., Winston-Salem Johns Hopkins Med. School, 1906.	1907	1907
Hammock, J. C., Walkertown P. and S., Baltimore, 1895.	1895	1905
Hurdle, S. W., Lewisville Jeff. Med. Coll., Phila., 1914.	1914	1915
Jewett, R. D., Winston-Salem Univ. of Va., 1888.	1890	1890
Johnson, W. M., Winston-Salem Jeff. Med. Coll., Phila., 1908.	1908	1910
Kapp, H. H., Winston-Salem Jeff. Med. Coll., Phila., 1901.	1901	1904
Lawrence, C. S., Winston-Salem George Washington Univ., 1908.	1908	1908
Linville, A. Y., Winston-Salem Univ. of N. Y., 1889.	1889	1889
Lockett, E. A., Winston-Salem Univ. of Penna., 1902.	1903	1903
Long, V. M., Winston-Salem N. C. Med. Coll., 1906.	1906	1906
Lott, H. S., Winston-Salem Univ. of Georgia, 1884.	1887	1887
Paddison, J. R., Kernersville Univ. of Maryland, 1902.	1902	....
Pepper, J. K., Winston-Salem P. and S., Baltimore, 1907.	1908	1908
Pfohl, S. F., Winston-Salem Univ. of Penna., 1894.	1898	1898

Name and Address.	*Licensed.*	*Joined State Society.*
Salmons, L. R., Winston-Salem N. C. Med. Coll., 1912.	1912	1912
Schallert, P. O., Winston-Salem Univ. of Ill., Med. Dept., 1904.	1904	1904
Schaub, O. P., Winston-Salem Baltimore Med. Coll., 1898.	1898	1898
Shaffner, T. F., Sr., (Hon.), Winston-Salem	....	....
Spainhour, E. H., Winston-Salem Baltimore Med. Coll., 1898.	1898	1898
Spencer, W. O., Winston-Salem Jeff. Med. Coll., Phila., 1891.	1891	1894
Strickland, E. F., Bethania Univ. of N. Y., 1887.	1887	1903
Summers, C. L., Winston-Salem	....	....
Valk, A. deT., Winston-Salem Johns Hopkins Med. School, 1910.	1913	1913
Wall, R. L., Winston-Salem Jeff. Med. Coll., Phila., 1906.	1907	1907
Whittington, J. B., Winston-Salem N. C. Med. Coll., 1911.	1911	1911
Wooding, C. E., Winston-Salem Univ. of Va., 1905. (Temp.)	1915	1915
Wyatt, Wortham, Winston-Salem Univ. of Penna., 1913.	1913	1915

FRANKLIN COUNTY SOCIETY.

President, R. F. Yarborough, Louisburg Columbia Univ., D. C., 1898.	1899	1899
Secretary, H. A. Newell, Louisburg P. and S., Balt., 1906.	1906	1906
Burt, S. P., Louisburg P. and S., Balt., 1896.	1896	1904
Coppidge, T. O., Castalia, R. F. D. 1 P. and S., Balt., 1908.	1909	....
Harris, J. H., Franklinton Bellevue Med. Coll., 1886.	1886	1904
Henderson, R. B., Franklinton Univ. of Md., 1887.	1887	1904
Johnson, B. C., Bunn Univ. of N. C., 1909.	1910	1910
Malone, J. E., Louisburg Bellevue Med. Coll., 1875.	1885	1904
Newell, J. O., Henderson, R. F. D. 6 P. and S., Balt., 1910.	1910	1910
Penny, E. M., Louisburg P. and S., Balt., 1907.	1908	....
Perry, G. H., Woods	....	....

GASTON COUNTY SOCIETY.

President, Dr. J. A. Anderson, McAdenville Univ. of Ga., 1899.	1909	1909
Secretary, B. V. Puett, Dallas Woman's Med. Coll., Balt., 1909.	1909	1910
Adams, C. E., Gastonia Univ. of Md., 1878.	1885	1904
Anders, McT. G., Gastonia Med. Coll. of Va., 1901.	1902	1902
Anthony, J. E., King's Mountain Univ. of Tenn., 1911.	1911	1911

Name and Address.	*Licensed.*	*Joined State Society.*
Eddleman, H. M., Gastonia Ky. School of Med., 1886.	1886	1904
Garrison, D. A., Gastonia Louisville Med. Coll., 1896.	1896	1899
Garren, R. H., Monroe Univ. of Nashville, 1900.	1901	1904
Glenn, H. F., Gastonia P. and S., Atlanta, 1900.	1900	1904
Glenn, L. N., Gastonia Univ. of Md., 1897.	1897	1897
Hood, J. S., King's Mountain Jeff. Med. Coll., 1907.	1907	1910
Hunter, M. C., Huntersville P. and S., Balt., 1882.	1882	1904
McAdams, C. R., McAdenville N. C. Med. Coll., 1912.	1912	....
McCombs, C. J., Gastonia N. C. Med. Coll., 1905.	1905	1908
McCoy, T. M., Mt. Holly N. C. Med. Coll., 1905.	1906	1907
Patrick, L. N., Gastonia Univ. of Md., 1910.	1910	1903
Quickel, T. C., Gastonia Tulane Univ., 1900.	1899	1904
Reid, J. W., Lowell Jefferson Med. Coll., Phila., 1909.	1909	1909
Reid, R. M., Gastonia Univ. of N. Y., 1890.	1890	1903
Rhyne, R. E., Mt. Holly N. C. Med. Coll., 1907.	1907	1908
Robinson, Frank, Lowell Louisville Med. Coll., 1878.	1878	1904
Rowe, R. H., Bessemer City Univ. of Louisville, 1812.	1912	1915
Sloan, J. M., Gastonia Louisville Med. Coll., 1891.	1891	1904
Wilkins, S. A., Dallas Univ. of Ky., 1902.	1903	1903
Wilson, F. G., Gastonia Univ. of Md., 1896.	1896	1899

GRANVILLE COUNTY SOCIETY.

President, G. T. Sikes, (Hon.), Grissom Univ. of Md., 1883.	1884	1884
Secretary, W. N. Thomas, Oxford Med. Coll. of Va., 1911.	1911	....
Booth, S. D., Oxford, (Hon.) Med. Coll. of Va., 1867.	1885	1885
Booth, T. L., Oxford Med. Coll. of S. C., 1883.	1885	....
Bullock, W. B., Hester Bellevue Med. Coll., 1892.	1892	....
Cannady, S. H., Oxford Univ. of Va., 1887.	1889	....
Daniel, N. C., Oxford N. C. Med. Coll., 1895.	1895	....
Hardee, P. R., Stem P. and S., Balt., 1885.	1885	1885

Name and Address.	*Licensed.*	*Joined State Society.*
Hays, B. K., Oxford Univ. Coll. of Med., Va., 1894.	1894	1896
Holloway, O. W., North Side Med. Coll. of Va., 1901.	1901	1903
Meadows, E. B., Oxford Univ. Coll. of Med., Va., 1901.	1901	1901
Morris, J. A., Oxford, R. F. D. No. 2 Vanderbilt Univ., 1890.	1893	1893
Sanderford, J. F., Creedmoor P. and S., Balt., 1890.	1890	1891
Taylor, W. L. Stovall Univ. of Va., 1900.	1900	1900
Uhls, Russell T., Hester	....	....
Watkins, G. S., Oxford Univ. Coll. of Med., Va., 1900.	1900	....

GREENE COUNTY SOCIETY.

President, W. B. Murphy, Snow Hill Univ. Coll. of Med., Va., 1903.	1903	1903
Secretary, G. C. Edwards, Hookerton Bellevue Med. Coll., 1883.	1883	1883
Carroll, Jno. L., Hookerton Louisville M. C., 1905.	1905	....
Harper, J. H., Snow Hill Jefferson Med. Coll., Phila., 1906.	1906	1906
West, A., Walstonburg, R. F. D Cinn. Med. Coll., 1887.	1895	1904
Whittington, W. W., Snow Hill Louisville Med. Coll., 1895.	1895	1898

GUILFORD COUNTY SOCIETY.

President, W. P. Beall, (Hon.), Greensboro Jefferson Med. Coll., 1879.	1879	1879
Secretary, William M. Jones, Greensboro Univ. of Md., 1903.	1903	1903
Ashworth, W. C., Greensboro P. & S. Balt., 1892.	1892	1892
Austin, J. W., High Point Jefferson Med. Coll., Phila., 1910.	1910	1913
Banner, C. W., Greensboro Univ. of Md., 1899.	1899	1901
Battle, J. T. J., Greensboro P. and S., Balt., 1884.	1884	1889
Beall, L. G., Greensboro N. C. Med. Coll., 1906.	1906	1906
Bowman, H. P., Greensboro Univ. of Tenn., 1894.	1894	....
Boyles, J. H., Greensboro P. and S., Balt., 1903.	1903	1903
Braddy, W. H., Greensboro Univ. of N. C., 1909.	1909	1913
Burrus, J. T., High Point Balt. Med. Coll., 1901.	1898	1898
Coe, S. S., High Point Univ. Coll. of Med., Va., 1911.	1912	1912
Cole, W. F., Greensboro Johns Hopkins, 1909.	1909	1909
Dees, R. E., Greensboro Univ. of Md., 1906.	1908	1908

Name and Address.	*Licensed.*	*Joined State Society.*
Dees, R. O., Greensboro Univ. of Md., 1906.	1906	1907
Dick, J. V., Gibsonville Univ. of N. C., 1907.	1907	1908
Dodson, H. H., Greensboro Med. Coll. of Va., 1882.	1885	1886
Duncan, G. F., High Point Balt. Univ., 1898.	1898	1907
Fortune, A. F., Greensboro Univ. Coll. of Med., Va., 1900.	1900	1904
Fox, M. F. (Hon.), Guilford College P. and S., Balt., 1881.	1885	1885
Gilmer, C. S., Greensboro, R. F. D. 6 Univ. of N. Y., 1891.	1891	1894
Gordon, J. R., Cary Univ. of N. Y., 1891.	1891	....
Gove, Anna M., Greensboro Woman's Med. Coll., N. Y., 1892.	1894	1894
Grayson, C. S., High Point George Washington Univ., 1906.	1907	1908
Harrison, Edmund, Greensboro Univ. of Md., 1896.	1900	1900
Hiatt, H. B., High Point Univ. of Md., 1907.	1907	....
Hilton, J. J., Greensboro Univ. of Md., 1886.	1889	1904
Holt, W. T., McLeansville Univ. of Tenn., 1890.	1890	1890
Hyatt, F. C., Greensboro Jefferson Med. Coll., Phila., 1907.	1907	1907
Jackson, W. L., High Point N. C. Med. Coll., 1912.	1912	1913
Jarboe, Parran, Greensboro Georgetown Univ., 1905.	1906	1906
Knight, W. P., Greensboro Balt. Med. Coll., 1898.	1898	1898
Long, J. W. (Hon.), Greensboro Vanderbilt Univ., 1884.	1884	1884
Mann, I. T., High Point Jeff. M. C. of Phila., 1912.	1912	....
McAnally, W. J., High Point Balt. Med. Coll., 1897.	1896	1899
McCain, H. W., High Point Univ. of Md., 1909.	1909	1911
Meadows, W. J., Greensboro Med. Coll. of Ala., 1894.	1899	1904
Mebane, W. N., Greensboro Geo. Washington Univ. Med. School, 1906.	1908	....
Michaux, E. R., Greensboro Univ. of N. Y., 1889.	1889	1904
Miles, Mary S., Greensboro Woman's Med., Cinn., O., 1898.	1904	1905
Moore, Charles E., Greensboro Jefferson Med. Coll., Phila., 1907.	1909	....
Moseley, C. W., Greensboro Balt. Med. Coll., 1893.	1893	1896
Norman, G. W., Greensboro Balt. Med. Coll., 1896.	1896	1896
Ogburn, H. H., Greensboro Johns Hopkins Univ., 1913.	1913	....

Name and Address.	*Licensed.*	*Joined State Society.*
Pate, F. J., Greensboro	....	....
Reitzel, C. E., High Point	1902	1902
P. and S., Atlanta, 1902.		
Reives, C. R., Greensboro	1914	1914
Univ. of the South, 1906.		
Reives, J. T., Greensboro	1891	1892
Louisville Med. Coll., 1891.		
Reives, W. P., Greensboro	1905	....
Univ. of the South, 1903.		
Richardson, W. J., Greensboro	1889	1901
Jefferson Med. Coll., Phila., 1869.		
Roberson, Charles, Greensboro	1897	....
Long Island College Hospital, 1897.		
Schoonover, R. A., Greensboro	1906	1912
Univ. of Md., 1905.		
Smith, A. T., Greensboro	1910	1913
Med. Coll. of Va., 1908.		
Spoon, O. A., Revolution	1908	....
N. C. Med. Coll., 1908.		
Stanton, D. A., High Point	1887	1894
Vanderbilt Univ., 1887.		
Tankersley, J. W., Greensboro	1906	1906
Jefferson Med. Coll., 1906.		
Taylor, F. R., High Point	1913	....
Univ. of Pa., 1913.		
Turner, J. P., Greensboro	1897	1904
Univ. of Md., 1896.		
Tyson, T. D., Pleasant Garden	1899	....
Univ. Coll. of Med., Va., 1899.		
Walker, J. B., Gibsonville	1914	....
M. C. of Va., 1914.		
Whitaker, A. C., Julian	1903	....
Univ. of Tenn., 1903.		
Williams, B. B., Greensboro	1886	....
Univ. of Md., 1883.		
Williams, J. A., Greensboro	1898	1898
Univ. of Va.. 1898.		
Williams, John D., Guilford	1898	....
Vanderbilt Univ., 1898.		
Wilson, A. R. (Hon.), Greensboro	1882	...
Jefferson Med. Coll., Phila., 1882.		
Wilson, N. G., Summerfield	1914	....
N. C. Med. Coll., 1914.		

HALIFAX COUNTY SOCIETY.

President.	....	....
Secretary, A. S. Harrison, Enfield	1888	1888
Univ. of Md., 1888.		
Adkins, E. H., Rosemary	1907	....
Univ. of Md., 1905.		
Beckwith, R. P., Rosemary	1913	...
Univ. of Pa., 1911.		
Ferguson, H. B., Halifax	1882	....
Jeff. Med. Coll. 1882.		
Fleming, W. D., Enfield	1910	....
Univ. of N. C., 1910.		
Green, I. E., Weldon	1873	...
Jarmon, F. G., Rosemary	1914	....
Univ. Coll. of Med., Va., 1911.		

Name and Address.	*Licensed.*	*Joined State Society.*
Kitchin, T. B., Scotland Neck Jeff. M. C. of Phila., 1908.	1908	....
Leggett, K., Hobgood Ky. School of Med., 1884.	1885	1885
Long, T. W. M., Roanoke Rapids Univ. Coll. of Med., Va., 1908.	1909	....
Nicholson, B. M., Ringwood Univ. Coll. of Med., Va., 1910.	1910	1913
Norman, J. H., Vaughan Tulane Univ. of La., 1905.	1905	....
Price, S. B., Weldon Bellevue Hosp. M. C., N. Y., 1897.	1897	....
Register, F. M., Tillery Kentucky School of Med., 1893.	1891	1904
Smith, Oscar F., Scotland Neck Univ. Coll. of Med., Va., 1899.	1899	1899

HARNETT COUNTY SOCIETY.

President, R. L. Warren, Dunn Tulane University, 1911.	1911	1912
Secretary, F. R. Ruff, Duke Univ. Coll. of Med., Va., 1913.	1915	....
Arnold, L. J., Lillington N. C. Med. Coll., 1905.	1905	1905
Barefoot, M. L., Dunn Univ. of Md., 1911.	1911	1912
Halford, J. W., Lillington Columbia Univ., 1904.	1905	1905
Hicks, I. F., Dunn N. C. Med. Coll., 1902.	1902	1904
Highsmith, Charles, Dunn Balt. Med. Coll., 1898.	1898	1898
Holt, W. P., Duke Jefferson Med. Coll., Phila., 1895.	1895	1901
McKay, J. F., Buie's Creek S. C. Med. Coll., 1884.	1885	1904
McLean, J. W., Godwin N. C. Med. Coll., 1902.	1902	1902
Melvin, W. C., Linden Univ. Coll. of Med., Va., 1900.	1900	1905
Moore, F. T., Benson P. and S., Balt., 1885.	1885	1904
Roberts, H. C., Coats Tulane Univ., 1912.	1912	1913
Sexton, C. H., Dunn Univ. of Md., 1890.	1890	1904
Smith, F., Linden S. C. Med. Coll., 1868.	1885	1905

HAYWOOD COUNTY SOCIETY.

President, J. H. Mease, Canton Vanderbilt Univ., 1893.	1893	1894
Secretary, J. R. McCracken, Waynesville	....	....
Abel, J. F., Waynesville Univ. of Balt., 1892.	1893	1899
Allen, R. L., Waynesville Univ. of Md., 1885.	1885	1899
Greenwood, B. H., Waynesville Balt. Med. Coll., 1893.	1894	1906

Name and Address.	*Licensed.*	*Joined State Society.*
McMahan, J. W., Cresmont Tennessee Med. Coll., 1900.	1912	1913
Reynolds, T. F., Canton N. C. Med. Coll., 1904.	1904	1904
Russell, J. M., Canton Univ. of Nashville, 1911.	1911	1911
Stringfield, S. L., Canton Jefferson Med. Coll., Phila., 1905.	1905	1906
Way, J. Howell, Waynesville Vanderbilt Univ., 1886.	1885	1887
Wilson, J. E., Canton, R. F. D. Louisville Med. Coll., 1876.	1885	1903

HENDERSON-POLK COUNTY SOCIETY.

President, J. S. Brown, Hendersonville Northwestern Univ., 1893.	1894	1894
Secretary, E. Pierce Mallet, Hendersonville Long Island Med. Coll., 1889.	1913	1913
Cliff, B. F., Flat Rock George Washington Univ. Med. School, 1908.	1914	1915
Cranford, J. F., Hendersonville N. C. Med. Coll., 1909.	1909	1910
Dixon, G. E., Hendersonville P. and S., St. Louis, 1903.	1903	1903
Drafts, A. B., Hendersonville Univ. of Va., 1896.	1899	1903
Edgerton, J. L., Hendersonville Univ. of Md., 1877.	....	1890
Greenwood, S. E., Fletcher, R. F. D. Tenn. Med. Coll., 1902.	1903	1904
Hooper, Jno. O., Saluda Univ. of Nashville, 1908.	1908	1909
Howe, W. B. W., Hendersonville Med. Col. of S. C., 1906.	1907	1908
Kirk, W. R., Hendersonville Central Univ. of Ky., 1890.	1901	1903
Morse, L. B., Hendersonville Chicago Homeopathic Coll., 1897.	1901	1908
Palmer, M. C., Tryon Med. Coll. of S. C., 1910.	1911	1913
Salley, E. M., Saluda Univ. of Md., 1905.	1905	1906
Summer, T. W., Fletcher Jefferson Med. Coll., Phila, 1910.	1910	1910

HERTFORD COUNTY SOCIETY.

President,	....	....
Secretary, A. W. Green, Ahoskie Univ. Coll. of Med., Va., 1904.	1904	1905

HOKE COUNTY SOCIETY.

(See Cumberland-Hoke.)

IREDELL-ALEXANDER COUNTY SOCIETY.

President, F. A. Carpenter, Statesville N. C. Med. Coll., 1906.	1906	1906
Secretary, John E. McLaughlin, Statesville Univ. of Md., 1886.	1886	1896

Name and Address.	*Licensed.*	*Joined State Society.*
Adams, M. R., Statesville Univ. of Md., 1878.	1884	1884
Anderson, T. E., (Hon.), Statesville Jefferson Med. Coll., Phila., 1878.	1878	1878
Davis, James W., Statesville Univ. of Pa., 1913.	1913	1915
Hall, E. H., Dunlap Univ. of Md., 1866.	....	....
Leeper, D. H., Hiddenite N. C. Med. Coll., 1906.	1906	1913
Long, H. F., Statesville Univ. of Md., 1892.	1892	1903
Sherrill, C. L., Statesville N. C. Med. Coll., 1914.	1914	....

JACKSON COUNTY SOCIETY.

President, Charles Z. Candler, Sylva P. and S., Atlanta, 1901.	1901	1912
Secretary, D. D. Hooper, Sylva Univ. Coll., of Med., Va., 1905.	1905	1905

JOHNSTON COUNTY SOCIETY.

President, George D. Vick, Selma Jefferson Med. Coll., Phila., 1906.	1906	1906
Secretary, Oscar Eason, Princeton Univ. of N. C., 1910.	1910	1910
Coleman, G. S., Kenly Med. Coll. of Va., 1907.	1907	1908
Godwin, G. C., Pine Level	....	....
Grady, J. C., Kenly P. and S., Balt., 1887.	1887	1905
Griffin, J. A., (Hon.), Clayton P. and S., Balt., 1881.	....	1905
Griffin, T. A., Clayton Univ. of Md., 1912.	1912	1912
Hooks, T., Smithfield Med. Coll. of Va., 1901.	1901	1903
McLemore, G. A., Clayton Univ. of N. C., 1900.	1906	1907
Myerburg, I. W., Pine Level Jefferson Med. Coll., Phila., 1907.	1907	1908
Noble, R. J., (Hon.), Selma Ky. Med. School, 1875.	1879	1878
Person, J. B., Selma Med. Coll. of Va., 1897.	1897	1900
Rose, A. H., Smithfield Jefferson Med. Coll., Phila., 1906.	1906	1906
Utley, H. H., Benson Balt. Med. Coll., 1906.	1906	1906
Wharton, L. D., Smithfield Tulane Univ., 1893.	1893	1894
Wilmerding, W. E., Selma Univ. of the South, Sewanee, 1899.	1915	....
Woodard, A. G., Princeton Univ. of N. C., 1907.	1907	1907
Woodard, G. B., Kenly M. C. of Va., 1915.	1915	....
Young, J. J., Clayton P. and S., Balt., 1897.	1896	1904

LEE COUNTY SOCIETY.

Name and Address.	*Licensed.*	*Joined State Society.*
President, E. M. McIver, Jonesboro Univ. of N. C., 1908.	1908	1908
Secretary, Lynn McIver, Sanford Univ. of Ky., 1901.	1902	1902
Monroe, J. P., Sanford P. and S., Balt., 1901.	1901	1901
Monroe, W. A., Sanford Univ. of Md., 1886.	1886	1888
Rosser, R. G., Broadway N. C. Med. Coll., 1909.	1909	1911
Scott, E. L., Sanford Univ. of Md., 1897.	1899	....
Snipes, E. P., Jonesboro Vanderbilt Univ., 1890.	1892	1892
Watson, Leon, Broadway N. C. Med. Coll., 1900.	1900	1904

LENOIR COUNTY SOCIETY.

President, W. F. Hargrove, Kinston Univ. of Md., 1901.	1901	1901
Secretary, Z. V. Moseley, Kinston Univ. Coll. of Med., Va., 1913.	1913	....
Denny, W. W., (Hon.), Pink Hill	....	....
Hardy, I. M., Washington Med. Coll. of Va., 1901.	1902	1902
Hawes, S. J., Dover Univ. Coll. of Med., Va., 1911.	1911	....
Kornegay, George E., Kinston Tulane Univ. of La., 1907.	1913	....
McNairy, C. B., Lenoir P. and S., Balt., 1893.	1893	1907
Monk, H. D., Trenton Med. Coll. of Va., 1896.	1896	1904
Parrott, A. D. Kinston Univ. Coll. of Med., Va., 1906.	1906	1906
Parrott, J. M., Kinston Tulane Univ., 1895.	1895	1895
Parrott, W. T., Kinston Tulane Univ., 1895.	1895	1895
Tull, Henry, (Hon.), Kinston Univ. of Pa., 1876.	1876	1876
Whitaker, F. A., Kinston Univ. of Pa., 1875.	1871	1884
Whitaker, F. S., Kinston Balt. Med. Coll., 1913.	1913	1913
Whitaker, R. A., (Hon.), Kinston P. and S., Balt., 1885.	1885	1885

LINCOLN COUNTY SOCIETY.

President, L. A. Crowell, Lincolnton Balt. Med. Coll., 1892.	1892	1892
Secretary, C. D. Thompson, Lincolnton Univ. of Tenn., 1901.	1901	1904
Abernethy, H. N., Denver Louisville Med. Coll., 1894.	1894	1898

Name and Address.	*Licensed.*	*Joined State Society.*
Gamble, J. R., High Shoals	1911	....
Univ. of Nashville and Tenn., 1911.		
Hoover, C. H., Crouse	1903	1904
Balt. Med. Coll., 1903.		
Jacocks, W. P., Kingstown, St. Vincent, B. W. I	....	....
St. Vincent, B. W. I.		
Killian, R. B., Lincolnton, R. F. D.	1885	1904
Louisville Med. Coll., 1885.		
Kizer, W. C., Reepsville	....	1904
Southern Med. Coll., Ga., 1889.		
Matthews, W. S., Cleveland Mill	....	....
Saine, J. W., Lincolnton	1891	1904
Louis. Med. Coll., 1891.		
Sloan, H. L., Lincolnton	1913	....
Univ. of Pa., 1911.		

McDOWELL COUNTY SOCIETY.

President, D. M. McIntosh, Old Fort	1907	1908
Med. Coll. of Va., 1904.		
Secretary, J. F. Jonas, Marion	1903	1903
Balt. Med. Coll., 1903.		
Ashworth, B. L., Marion	1893	1895
P. and S., Balt., 1893.		
Justice, G. B., Marion	1907	1907
P. and S., Atlanta, 1906.		
Kirby, G. S., Marion	1896	1904
Univ. Coll. of Med., Va., 1897.		
Morphew, M. F., Marion	1883	1893
P. and S., Balto., 1883.		
Taylor, M. M., Nebo	....	....

MACON-CLAY COUNTY SOCIETY.

President, S. H. Lyle, Franklin	1881	1881
Univ. of Nashville, 1883.		
Secretary, W. A. Rogers, Franklin	1898	1898
Univ. of Nashville 1898.		
Lapham, Mary E., Highlands	1906	1906
Woman's Med. Coll. of Pa., 1900.		
Siler, F. L., Franklin	1898	1898
Univ. of Nashville, 1897.		
Smart, J. B., Haysville	1907	....
Chattanooga Med. Coll., 1900.		

MADISON COUNTY SOCIETY.

President, Frank Roberts, Marshall	1892	1902
Jefferson Med. Coll., Phila., 1892.		
Secretary, J. N. Moore, Marshall	1905	1908
Univ. of N. C., 1905.		
Baird, J. H., Mars Hill	1885	1885
Baird, J. W., Mars Hill	1908	....
Lincoln Memorial Univ., Knoxville, 1901.		
Burnett, I. E., Mars Hill	1905	....
Lincoln Memorial Univ., Knoxville, 1901.		
Packard, G. H., White Rock	....	....
Peck, E. J., Hot Springs	....	1907
Vanderbilt Univ., 1879.		
Sprinkle, C. N., Mars Hill	....	....
Tilson, J. C., Marshall	1885	1904
Tenn. Med. Coll., 1892.		

MARTIN COUNTY SOCIETY.

Name and Address.	*Licensed.*	*Joined State Society.*
President, R. M. Blair, Williamston, R. F. D.	....	....
Secretary, Wm. E. Warren, Williamston	1893	1894
P. and S., N. Y., 1889.		
Fleming, M. J., Hamilton	1906	1906
Jefferson Med. Coll., Phila., 1906.		
Hargrove, R. H., (Hon.), Robersonville	1879	1879
Univ. of Md., 1877.		
Knight, J. B. H., Williamston	1885	1891
P. and S., Balt., 1885.		
Long, B. L., Hamilton	1883	1882
Univ. of Md., 1881.		
Long, E. M., Oak City	1909	1909
Univ. of Md., 1909.		
Nelson, R. J., Robersonville	1890	1893
Louisville Med. Coll., 1890.		
Rhodes, J. S., Williamston	1906	1906
Med. Coll. of Va., 1906.		
Saunders, J. H., Williamston	1905	1905
Univ. Coll. of Med., Va., 1905.		
Smithwick, J. E., Jamesville	1897	1897
Med. Coll. of Va., 1897.		
Ward, J. E., Robersonville	1904	1904
Univ. of Md., 1904.		
Ward, V. A., Robersonville	1908	1908
Jefferson Med. Coll., Phila., 1908.		
Williams, J. W., Everitts	1906	1906
Univ. of Md., 1906.		
York, H. B., Williamston	1906	1906
P. and S., Balt., 1906.		

MECKLENBURG COUNTY SOCIETY.

President, S. C. McLaughlin, Charlotte	1896	1903
Univ. of Md., 1896.		
Secretary, Otho B. Ross, Charlotte	1909	1911
Univ. of Pa., 1909.		
Abernethy, J. S., Charlotte, R. F. D. 6	1878	1878
P. and S., Balt., 1878.		
Alexander, Annie L., Charlotte	1885	1885
Woman's Med. Coll., Pa., 1884.		
Alexander, J. R., Charlotte	1894	1898
Univ. of Md., 1894.		
Allan, William, Charlotte	1906	1908
P. and S., Balt., 1906.		
Ashe, J. R., Charlotte	1915	1915
Columbia Univ., 1911.		
Austin, F. DaC., Charlotte	1907	1907
N. C. Med. Coll., 1907.		
Austin, J. A., Charlotte	1882	1887
Jefferson Med. Coll., Phila., 1882.		
Boyette, E. C., Charlotte	1898	1898
Balt. Med. Coll., 1893.		
Brenizer, A. G., Charlotte	1910	1909
Johns Hopkins and Univ. Heidelberg, 1908.		
Caldwell, J. H., Charlotte	1914	1914
N. C. Med. Coll., 1914.		
Clifford, J. S., Charlotte	1907	1908
George Washington Univ., 1906.		

Name and Address.	*Licensed.*	*Joined State Society.*
Craven, W. W., Huntersville	1904	1912
Univ. Md., 1903.		
Crowell, A. J., Charlotte	1892	1893
Univ. of Md., 1893.		
Crowell, S. M., Charlotte	1895	1895
Univ. of Md., 1895.		
Davidson, J. E. S., Charlotte	1898	1898
Univ. of Md., 1894.		
DeArmon, J. McC., Charlotte	1886	1886
Univ. of Md., 1886.		
Faison, I. W., (Hon.), Charlotte	1878	1878
Bellevue Med. Coll., 1878.		
Faison, Yates, Charlotte	1910	1912
Harvard Univ., 1910.		
Gallant, R. M., Charlotte	1915	1916
N. C. Med. Coll., Charlotte, 1915.		
Gibbon, R. L., Charlotte	1891	1893
Jefferson Med. Coll., Phila., 1892.		
Graham, W. A., Charlotte	1889	1890
P. and S., N. Y., 1888.		
Henderson, S. M., Charlotte, R. F. D.	1894	1904
Univ. of Md., 1894.		
Houser, O. J., Charlotte	1914	....
N. C. Med. Coll., 1914.		
Hovis, L. W., Haskill	1904	1906
N. C. Med. Coll., 1904.		
Hunter, E. R., Charlotte	1897	1897
Louisville Med. Coll., 1896.		
Hunter, L. W., Charlotte	1894	1904
Univ. of Md., 1894.		
Hunter, Myers, Charlotte	1906	1906
Georgetown Univ., 1905.		
Irwin, J. R., (Hon.), Charlotte	1882	1882
Univ. of Md., 1879.		
Johnson, J. G., Charlotte	....	....
King, P. M., Charlotte	1902	1904
Bellevue Med. Coll., 1902.		
Lafferty, R. H., Charlotte	1906	1906
N. C. Med. Coll., 1906.		
Leinbach, R. F., Charlotte	1907	1909
Univ. of Pa., 1907.		
Lubchenko, M. E., Newells	....	1916
MacConnell, J. W., Davidson	1908	1908
Univ. of Md., 1907.		
Matheson, J. P., Charlotte	1902	1902
N. C. Med. Coll., 1902 Univ. of Md., 1905.		
McKay, H. W., Charlotte	1911	1912
Jefferson Med. Coll., Phila., 1910.		
Meisenheimer, C. A., (Hon.), Charlotte	1882	1882
N. Y. Univ. Med. Coll., 1882.		
Montgomery, J. C., Charlotte	1891	....
N. Y. Un. Med. Coll., 1891.		
Moore, A. W., Charlotte	1912	1912
Univ. of Va., 1901; Univ. of N. Y., 1902.		
Moore, Oren, Charlotte	1911	1911
N. C. Med. Coll., 1911.		
Munroe, J. P., Charlotte	1887	1887
Univ. of Va., 1886.		
Myers, John Q., Charlotte	1904	1904
N. C. Med. Coll., 1904.		

Name and Address.	*Licensed.*	*Joined State Society.*
Nalle, B. C., Charlotte Univ. of Va., 1903.	1905	1905
Newell, L. B., Charlotte Univ. of N. C., 1905.	1905	1905
Nisbet, W. O., Charlotte Med. Coll. of S. C., 1889.	1899	1899
Patterson, Reid, Haskins	....	....
Peeler, C. N., Charlotte N. C. Med. Coll., 1906.	1906	1906
Petrie, R. W., Charlotte Univ. of Md., 1903.	1903	1903
Petteway, G. H., Charlotte, R. F. D. N. C. Med. Coll., 1913.	1913	1914
Pharr, W. W., Charlotte P. and S., Balt., 1882.	1883	1883
Pressley, G. M., Charlotte Jefferson Med. Coll., Phila., 1892.	1895	1895
Pressley, J. M., West Hill	....	....
Query, R. A., Charlotte, R. F. D. 3 Univ. Coll. of Med., Va., 1907.	1907	1907
Ranson, J. L., Pineville R. F. D. 15 N. C. Med. Coll., 1911.	1911	1911
Register, E. C., Charlotte Univ. of N. Y., 1885.	1887	1887
Reid, W. K., Charlotte Univ. of N. Y., 1891.	1891	1891
Sadelson, G. H., Charlotte Univ. of Buffalo, 1876.	1885	....
Simmons, J. O., Charlotte Grant Univ., 1894.	1906	1906
Squires, J. W., Charlotte N. C. Med. Coll., 1911.	1911	1911
Strong, C. M. Charlotte Univ. of Md., 1888.	1898	1898
Summers, J. W., Charlotte N. C. Med. Coll., 1905.	1905	1910
Thompson, S. R., Charlotte N. C. Med. Coll., 1914.	1914	1915
Tucker, J. H. Charlotte Univ. of Va., 1899.	1899	1899
Wakefield, H. A., Charlotte N. C. Med. Coll., 1908.	1908	1911
Wakefield, W. H., Charlotte Ky. Coll. of Med., 1890.	1891	1893
Walker, C. E., Charlotte Univ. of Md., 1891.	1891	1894
Whisnant, A. M., Charlotte P. and S., Balt., 1893.	1893	1895
Wishart, W. E., Charlotte N. C. Med. Coll., 1911.	1911	1911
Withers, J. J., Davidson Jefferson Med. Coll., Phila., 1909.	1909	....
Witherspoon, B. J., Charlotte S. C .Med. Coll., 1894.	1900	1906
Wright, T. H., Charlotte Univ. of Va., 1901.	1904	1904

MITCHELL COUNTY SOCIETY.

Name and Address.	*Licensed.*	*Joined State Society.*
President, C. A. Peterson, Spruce Pine N. C. Med. Coll., 1907.	1907	1908
Secretary, R. E. Stack, Bakersville N. C. Med. Coll., 1911.	1911	1912

MONTGOMERY COUNTY SOCIETY.

President, A. F. Thompson, Troy Med. Coll. of Ind., 1895.	1895	1902
Secretary, Charles Daligny, Troy Military Med. School, Paris, 1878.	1885	1902
Andrews, V. L., Mount Gilead Univ. Coll. of Med., Va., 1909.	1909	....
Armstrong, C. W., Troy Univ. of Md., 1914.	1914	1915
Dameron, E. L., Star N. C. Med. Coll., 1911.	1911	....
Hoyle, H. B., Biscoe N. C. Med. Coll., 1896.	1896	1903
Ingram, C. B., Mount Gilead Jefferson Med. Coll., Phila., 1886.	1886	1902
Rankin, P. L., Mount Gilead N. C. Med. Coll., 1910.	1910	1912
Shamburger, J. B., Star Univ. of Md., 1890.	1890	1892

MOORE COUNTY SOCIETY.

President, A. A. McDonald, Jackson Springs N. C. Med. Coll., 1905.	1905	1912
Secretary, J. H. Matthews, Vass Univ. of N. C., 1907.	1907	1908
Achorn, J. W., Pine Bluff Med. School of Maine, 1887; Bellevue Med. Coll., 1889.	1899	....
Blair, A. McN. Southern Pines Univ. of N. Y., 1897.	1905	1905
Davis, J. F., Glendon Med. Coll. of Va., 1912.	1912	....
Gladman, Ed., Southern Pines Nat. Univ. Washington, 1890.	1899	....
Grier, C. T., Carthage N. C. Med. Coll., 1910.	1912	....
Matthews, M. L., Cameron Univ. of N. C., 1903.	1903	1903
Marr, M. W., Pinehurst	....	1915
McLeod, A. H., Aberdeen Balt. Med. Coll., 1896.	1896	1904
McLeod, G. M., Carthage Univ. of Md., 1882.	1885	1904
McMillan, J. M., Hemp Atlanta Coll. of P. and S., 1909.	1909	1910
Mudgett, W. C., Southern Pines Univ. of Md., 1903.	1908	1908
Scott, E. L., Sanford	....	....
Shields, H. B., Carthage Atlanta Med. Coll., 1882.	1887	1904
Street, M. E., Glendon P. and S., Balt., 1893.	1893	1902

Name and Address.	*Licensed.*	*Joined State Society.*
Swett, W. P., Southern Pines Univ. of Vermont, 1876.	1893	1901
Thompson, Fred., Pine Bluff Harvard Univ., 1888.	1912	....

NASH COUNTY SOCIETY.

President, J. P. Battle, Rocky Mount Univ. of Md., 1889.	1889	....
Secretary, B. C. Willis, Rocky Mount Med. Coll. of Va., 1909.	1915	....
Battle, G. C., Rocky Mount	....	....
Boice, E. S., Rocky Mount Univ. of Pa., Phila., 1909.	1914	....
Brantley, H., Spring Hope Jefferson Med. Coll., Phila., 1888.	1888	....
Braswell, J. C., Nashville M. C. of Va., 1915.	....	....
Cutchin, Henry, Whitakers Univ. Coll. of Med., Richmond, 1911.	1911	....
Dean, T. J., Nashville Univ. of the South, 1908.	1910	....
Dixon, D. R., Rocky Mount Univ. Coll. of Med., Va., 1906.	1909	....
Ellen, C. J., Battleboro, R. F. D. Univ. Coll. of Med. Va.. 1911.	1911	....
Kornegay, L. W., Rocky Mount N. C. Med. Coll., 1906.	1906	1906
Lane, J. L., Rocky Mount N. C. Med. Coll., 1906.	1906	1906
Martin, J. H., Red Oak	....	....
Matthews, T. A., Castalia Univ. of Md., 1890.	1891	....
McCall, A. C., Rocky Mount Univ. of Md., Balt., 1910.	1910	....
Putney, R. H., Elm City Med. Coll. of Va., 1914.	1914	....
Quillen, E. B., Rocky Mount Univ. of Md., 1904.	1906	....
Ray, Hickman, Rocky Mount Univ. of Md., Balt., 1915.	1915	....
Speight, J. A., Rocky Mount Jeff. M. C. of Phila., 1906.	1906	....
Speight, R. H., Rocky Mount Univ. of Md., Balt., 1901.	1901	....
Staley, S. W., Rocky Mount Med. Coll. of State of S. C., 1901.	1901	....
Strickland, J. T., Nashville Univ. of Md., 1890.	1890	....
Whitaker, H. H., Nashville	....	....
Whitehead, J. P., Rocky Mount Univ. of Md., 1899.	1899	....
Wimberly, G. L., Rocky Mount Univ. of Md., Balt., 1883.	1883	....
Winstead, John, Nashville N. C. Med. Coll., Charlotte, 1914.	....	....

NEW HANOVER COUNTY SOCIETY.

Name and Address.	*Licensed.*	*Joined State Society.*
President, ...	....	....
Secretary, G. E. Bowdoin, Wilmington.....	1914	....
Med. Coll. of Va., 1914.		
Akerman, Joe., Wilmington.....	1905	1906
Johns Hopkins, 1905.		
Bellamy, R. H., Wilmington.....	1902	1902
Jefferson Med. Coll., Phila., 1902.		
Bellamy, W. J. H., (Hon.), Wilmington.....	1870	1870
Univ. of N. Y., 1868.		
Bolles, C. P., Jr., Wilmington.....	1908	1908
Univ. of Va., 1897.		
Bullock, D. W., (Hon.), Wilmington.....	1875	1875
Univ. Md., 1873.		
Bulluck, Ernest S., Wilmington.....	1911	1911
U. of Md., 1911.		
Causey, P. P., Wilmington.....	....	....
Univ. of Md., 1897.		
Cranmer, J. B., Wilmington.....	1905	1906
Univ. of N. C., 1905.		
Crawford, R. W., Wilmington.....	1909	....
Univ. of Md., 1906.		
Croom, G. A., Wilmington.....	1909	....
N. C. Med. Coll., 1909.		
Dickie, H. S., Wilmington.....	....	....
Univ. of Va., 1907.		
Galloway, W. C., (Hon.), Wilmington.....	1880	1880
Washington Univ. School of Med., 1874.		
Graham, Benj., Wilmington.....	1895	....
Univ. of Va., 1895.		
Green, T. M., Wilmington.....	1900	1903
Univ. of Md., 1900.		
Hall, Wright, (Hon.), Wilmington.....	1900	1900
Univ. of Md., 1900.		
Harper, J. W., Wilmington.....	1912	....
Univ. of Md., Balt., 1909.		
Harris, A. H., Wilmington.....	1892	1904
Medico-Chirurgical, Phila., 1893.		
Honnett, J. H., Wilmington.....	1901	1904
P. and S., N. Y., 1900.		
Koonce, S. E., Wilmington.....	1896	1900
P. and S., Balt., 1896.		
LeGwin, J. B., Wilmington.....	1913	....
Tulane Univ. of La., 1911.		
Love, W. J., (Hon.), Wilmington.....	1861	1870
S. C. Med. Coll., 1861.		
McDonald, A. D., (Hon.), Wilmington.....	1887	1877
Wash. Univ. Med., 1877.		
McMillan, W. D., (Hon.), Wilmington.....	....	1904
Univ. Md., 1868.		
Mebane, W. C., Wilmington.....	1905	....
N. C. Med. Coll., 1905.		
Moore, H. T., Wilmington.....	1913	1913
Tulane Univ., 1913.		
Moore, W. H., Wilmington.....	1910	1911
Jefferson Med. Coll., Phila., 1910.		
Murphy, J. G., Wilmington.....	1903	1905
Univ. Louisville, 1903.		
Nesbitt, C. T., Wilmington.....	1907	1908
Balt. Med. Coll., 1903.		

Name and Address.	*Licensed.*	*Joined State Society.*
Pridgen, C. L., Wilmington Jefferson Med. Coll., Phila., 1901.	1901	....
Roberson, J. F., Wilmington Univ. of Pa., 1913.	1913	....
Schonwald, J. L., (Hon.), Wilmington Long Island Med. Coll., 1879.	1880	1904
Sidbury, J. B., Wilmington Columbia Univ. N. Y., 1912.	1915	....
Slocum, R. B., Wilmington Johns Hopkins, 1905.	1907	1908
Stovall, Arnold, Wilmington Med. Chirurgical Coll., Phila., 1904.	1907	....
Strosnider, C. F., Wilmington Univ. of Md., 1909.	1910	1913
Thames, John, Wilmington Louisville Med. Coll., 1894.	1894	1895
Thomas, G. G., (Hon.), Wilmington Univ. of Md., 1871.	1871	1871
Wessell, J. C., Wilmington Univ. of Md., 1900.	1900	1900
Willingham, B. J., Wilmington Med. Coll. of Va., 1906.	1906	1906
Wood, E. J., Wilmington Univ. of Pa., 1902.	1903	1903

NORTHAMPTON COUNTY SOCIETY.

President, M. Bolton, Rich Square Jefferson Med. Coll., Phila., 1885.	1885	1885
Secretary, P. C. Brittle, Conway Univ. Col. of Med., Va., 1907.	1907	1907
Cooke, Q. H., Woodland Univ. of N. C., 1905.	1905	1907
Lassiter, E. W., Rich Square Univ. Coll. of Med., Va., 1908.	1908	1908
Lewis, H. W., Jackson Univ. of N. Y., 1877.	1885	1887
Lister, J. L., Jackson Med. Coll. of Va., 1896.	1896	1909
McDaniels, L. E., Lasker Univ. of Md., 1911.	1915	....
Parker, C. G., Woodland Univ. Coll of Med., Va., 1907.	1907	1909
Parker, C. P., Gansbury	....	....
Vaughn, J. E., Rich Square	....	....

ONSLOW COUNTY SOCIETY.

President, L. D. Bryan, Sneeds Ferry Tulane, 1910.	1910	1910
Secretary, R. L. Daniels, Swansboro Med. Coll. of Va., 1912.	1912	....
Cox, E. L., Jacksonville Univ. of Md., 1889.	1889	1892
Duffy, R. N., New Bern Johns Hopkins Univ., 1906.	1907	....
Hammond, A. F., Pollocksville Univ. Coll. of Med., 1903.	1903	....
Hyatt, H. O., Kinston Univ. of Pa., 1868.	1870	1870
Nicholson, J. L., (Hon.), Richlands Univ. Coll. of Med., N. Y., 1875.	1875	1880

Name and Address.	*Licensed.*	*Joined State Society.*
Sutton, C. W., Richlands Tulane Med. Coll., 1905.	1905	1905
Thompson, Cyrus, Jacksonville Univ. of Pa., 1878.	1885	1905

ORANGE COUNTY SOCIETY.

(See Durham-Orange.)

PAMLICO COUNTY SOCIETY.

President, S. E. McCotter, Bayboro P. and S., Atlanta, 1908.	1908	1908
Secretary, R. E. Watts, Oriental Med. Coll. of Va., 1911.	1913	....
Attmore, G. S., (Hon.), Stonewall Washington Univ. School of Med., 1870.	1870	1872
Bynum, C. M., Vandemere Med. Coll. of Va., 1914.	1914	....
Purdy, J. J., Oriental Med. Coll. of Va., 1900.	1914	....

PASQUOTANK-CAMDEN-DARE COUNTY SOCIETY.

President, W. A. Hoggard, Woodville Univ. Coll. of Med., Va., 1907.	1907	1910
Secretary, C. B. Williams, Elizabeth City Univ. Coll. of Med., Va., 1903.	1903	1906
Aydlett, H. T., Elizabeth City Univ. of Va., 1894.	1895	1896
Fearing, Isaiah, Elizabeth City P. and S., Balt., 1896.	1896	1904
Fearing, Z., Elizabeth City Univ. Coll. of Med., 1901.	1901	1904
Griggs, J. B., Elizabeth City Univ. of Md., 1892.	1892	1904
Kendrick, R. L., Elizabeth City Univ. of Va., 1913.	1913	1915
Lester, E. W., Weeksville Med. Coll. of Va., 1896.	1896	....
McMullen, Oscar, Elizabeth City Univ. of Va., 1880.	1885	1889
Newby, G. E., Hertford Jefferson Med. Coll., Phila., 1900.	1901	....
Peters, W. A., Elizabeth City Med. Coll. of Va., 1915.	1915	....
Saliba, John, Elizabeth City Univ. of Edinburgh, Scotland.	1914	1915
Sawyer, C. W., Elizabeth City Univ. of Md., 1886.	1885	1904
Sawyer, W. W., Elizabeth City Univ. of Md., 1903.	1903	1905
Stevens, W. L., Shiloh Univ. Coll. of Med., Va., 1912.	1912	....
Sutton, C. A., Manteo Chicago Coll. of Med. and Surg., 1908.	1910	....
Walker, H. D., Elizabeth City Univ. of Md., 1902.	1902	1902

PERQUIMANS COUNTY SOCIETY.

(See Chowan-Perquimans.)

PERSON COUNTY SOCIETY.

Name and Address.	*Licensed.*	*Joined State Society.*
President, J. H. Merritt, Woodsdale	1907	1908
Univ. of N. C., 1906.		
Secretary, A. F. Nichols, Roxboro	1908	1908
Univ. of N. C., 1908.		
Baynes, R. H., Hurdle Mills	1914	1915
Univ. of Md., 1914.		
Baynes, R. S., Hurdle Mills	1881	1904
P. and S., Balt., 1881.		
Bradsher, W. A., Roxboro	1904	1905
Univ. of Md., 1904.		
Gentry, G. W., Timberlake	1910	1911
Univ. of N. C., 1910.		
Long, W. T., Roxboro	1905	1907
Balt. Med. Coll., 1905.		
Love, B. E., Roxboro	1904	1904
Univ. of Md., 1904.		
Montague, S. S., Roxboro, R. F. D. No. 2	1910	....
Jefferson Med. Coll., Phila., 1910.		
Nichols, C. G., Roxboro	1885	1891
Bellevue Med. Coll., 1885.		
Swann, J. F., Semora	1898	1904
P. and S., Balt., 1898.		
Thaxton, B. A., Roxboro	1914	....
Jeff. Med. Coll., Phila., 1914.		
Warren, R. F., Prospect Hill	1911	1913
Atlanta School of Med., 1911.		

PITT COUNTY SOCIETY.

President, W. H. Dixon, Ayden	1901	1901
Med. Coll. of Va., 1901.		
Secretary, M. T. Edgerton, Jr., Greenville	1915	....
Johns Hopkins Univ., Balt., 1912.		
Dawson, W. W., Greenville	1897	1900
Univ. of Md., 1897.		
Frizzelle, M. T., Ayden	1907	1907
Univ. of Md., 1888.		
Laughinghouse, Charles O'H., Greenville	1893	1894
Univ. of Pa., 1893.		
Moseley, H. P., Farmville	1912	....
Univ. Coll. of Med., Richmond, 1912.		
Nobles, J. E. (Hon.), Greenville	1899	1902
Jefferson Med. Coll., Phila., 1899.		
Skinner, L. C., Greenville	1901	1902
Univ. of Md., 1901.		
Whitfield, W. C., Grifton	1884	1884
Univ. of Md., 1884.		

POLK COUNTY SOCIETY.

(See Henderson-Polk.)

RANDOLPH COUNTY SOCIETY.

President, F. E. Asbury (Hon.), Ashboro	1885	1896
S. C. Med. Coll., 1876.		
Secretary, C. A. Hayworth, Coleridge	1913	1913
Univ. of Md., 1913.		
Craven, F. C., Ramseur	1913	....
Univ. of Md., 1913.		

Name and Address.	*Licensed.*	*Joined State Society.*
Fox, D. L., Randleman Vanderbilt Univ., 1894.	1899	1904
Fox, T. I., Franklinville Vanderbilt Univ., 1894.	1899	1904
Hubbard, C. C., Farmer Jefferson Med. Coll., Phila., 1888.	1890	1904
Hunter, J. V., Ashboro Univ. of Louisville, 1898.	1898	1904
Miller, J. F., Ashboro Med. Chirurgical Coll. of Phila., 1906.	1915	....
Moore, W. J., Ashboro P. and S., Balt., 1893.	1893	1901
Sumner, W. J., Randleman Univ. of Tenn., 1893.	1894	1894
Tate, C. S., Ramseur Balt. Med. Coll., 1893.	1896	....

RICHMOND COUNTY SOCIETY.

President, F. J. Garrett, Rockingham Univ. of Md., 1889.	1887	1903
Secretary, A. C. Everett, Rockingham Univ. of Md., 1897.	1897	1903
Coppedge, N. P., Ellerbe Univ. of N. C., 1903.	1903	1903
Fowlkes, J. I., Hamlet P. and S., Atlanta, 1903.	1903	....
Garrett, F. B., Rockingham N. C. Med. Coll., 1912.	1912	....
Howell, W. L., Ellerbe, R. F. D. N. C. Med. Coll., 1910.	1910	1910
Hunter, N. C., Rockingham Merico-Chirurgical, Phila., 1899.	1899	1904
James, W. D., Hamlet Jeff. Med. Coll. of Phila., 1908.	1908	....
Kinsman, H. F., Hamlet Univ. of Vermont, 1894.	1897	1904
Ledbetter, J. M., Rockingham Vanderbilt Univ., 1894.	1894	1903
McPhail, L. D., Rockingham Univ. of Md., 1900.	1900	1902
Terry, W. C., Hamlet N. C. Med. Coll., 1911; Univ. of Md., 1912.	1912	....
Webb, W. P., Rockingham Med. Coll. of S. C., 1897.	1897	1904

ROBESON COUNTY SOCIETY.

President, T. L. Northrop, St. Pauls Univ. of Md., 1897.	1897	1897
Secretary, W. L. Grantham, Lumberton N. C. Med. Coll., 1906.	1906	1906
Andrews, N. H., Rowland N. C. Med. Coll., 1911.	1911	....
Beam, R. S., Lumberton Jefferson Med. Coll., Phila., 1912.	1912	1913
Bowman, E. L., McDonalds Med. Coll. of Va., 1914.	1914	....
Brown, J. C., Fairmont Univ. of Md., 1883.	1887	1887

Name and Address.	*Licensed.*	*Joined State Society.*
Currie, D. S., Parkton N. C. Med. Coll., 1906.	1906	1906
Hodgin, H. H., Red Springs Univ. of Md., 1905.	1906	1906
Johnson, T. L., Lumberton Univ. Coll. of Med., Va., 1905.	1905	1905
Kirkpatrick, L. R., Maxton N. C. Med. Coll., 1902.	1902	1902
McMillan, B. F., Red Springs Univ. of Md., 1882.	1884	1884
McMillan, J. L., Red Springs Univ. of Md., 1881.	1881	1881
McMillan, R. D., Red Springs Univ. of Md., 1910.	1911	1912
Nash, Fred, St. Pauls N. C. Med. Coll., 1914.	1914	....
Page, B. W., Lumberton Tulane Univ., 1909.	1909	1910
Pate, G. M., Raynham Univ. of Md., 1894.	1900	1905
Pope, H. T., Lumberton N. C. Med. Coll., 1894.	1893	1894
Reedy, Howard, Rowland Med. Coll. of S. C., 1884.	1887	1887
Ricks, L. E., Fairmont Med. Coll. of Va., 1896.	1896	1898
Rozier, R. G., Lumberton Univ. of Md., 1898.	1898	1898
Stamps, Thomas, Lumber Bridge Univ. of Louisville, 1888.	1888	1888
Thompson, N. A., Lumberton Maryland Med. Coll., 1905.	1895	1904

ROCKINGHAM COUNTY SOCIETY.

President,	....	....
Secretary, John B. Ray, Leaksville Balt. Med. Coll., 1898.	1898	1898
Cummins, M. P., Reidsville Jefferson Med. Coll., 1911.	1911	1911
Johnson, W. A., Reidsville N. C. Med. Coll., 1907.	1909	1909
Martin, S. L., Leaksville Balt. Med. Coll., 1892.	1892	1896
Matheson, R. C., Madison P. and S., Balt., 1891.	1891	1905
Matthews, Wm. W., Spray Chicago Coll. of Med. and Surg., 1913.	1915	....
Taylor, T. G., Leaksville Ky. School of Med., 1877.	1877	....
Tuttle, A. F., Spray N. C. Med. Coll., 1901.	1901	1901
Webb, S. E., Draper N. C. Med. Coll., 1908.	1908	1908
Wilson, W. P., Madison N. C. Med. Coll., 1908.	1908	1909

ROWAN COUNTY SOCIETY.

Name and Address.	*Licensed.*	*Joined State Society.*
President, Charles W. Woodson, Salisbury P. and S., New York, 1904.	1905	1907
Secretary, Harold H. Newman, Salisbury Johns Hopkins Univ., Balt., 1913.	1914	....
Boyden, W. C., China Grove N. C. Med. Coll., 1913.	1913	1914
Brawley, M. H., Salisbury N. C. Med. Coll., 1910.	1912	1914
Brawley, R. V., Salisbury Univ. Coll. of Med., Va., 1903.	1903	1904
Brown, G. W., Mt. Ulla Univ. of Va., 1897.	1897	1898
Busby, J. G., Spencer Univ. of Md., 1904.	1904	1904
Choate, G. W., Rockwell N. C. Med. Coll., 1909.	1909	1909
Councill, J. B., Salisbury P. and S., Balt., 1884.	1885	1885
Currie, E. W., Salisbury N. C. Med. Coll., 1907.	1907	1907
Edwards, B. O., Landis N. C. Med. Coll., 1905.	1905	1905
Heilig, H. G., Salisbury Univ. of Md., 1899.	1899	1904
Monk, G. M., Spencer Univ. of N. C., 1908.	1908	1908
Monk, H. L., Spencer Med. Coll. of Va., 1897.	1899	1903
Rainey, W. T., Salisbury Univ. Coll. of Med., Va., 1913.	1913	....
Ramseur, G. A., China Grove Jefferson Med. Coll., Phila., 1880.	1886	1898
Shafer, I. E., Gold Hill N. C. Med. Coll., 1914.	1914	1914
Sigmon, F. G., Spencer Univ. Coll. of Med., Va., 1909.	1909	1909
Spencer, F. B., Salisbury Univ. of N. C., 1909.	1909	1910
Stokes, J. E., Salisbury Univ. of Md., 1892.	1900	1901
Summerell, E. N. (Hon.), China Grove, R. F. D. Univ. of Pa., 1883.	1883	1883
Trantham, H. L. (Hon.), Salisbury Univ. of N. Y., 1875.	1878	1879
VanPoole, C. M. (Hon.), Salisbury P. and S., Balt., 1880.	1880	1880
West, R. M., Salisbury Med. Coll. of Va., 1900.	1900	1904
Whitehead, J. W. (Hon.), Salisbury Univ. of Pa., 1880.	1880	1880

RUTHERFORD COUNTY SOCIETY.

President, M. H. Biggs, Rutherfordton Univ. of Pa., 1897.	1907	1907
Secretary, C. B. McDaniel, Rutherfordton N. C. Med. Coll., 1913.	1913	1913
Allhand, J. M., Cliffside Chicago Coll. Med. and Surg., 1910.	1910	1910

Name and Address.	*Licensed.*	*Joined State Society.*
Andrews, R. M., Union Mills, R. F. D.	1904	1904
Memphis Hosp. Med. Coll., 1904.		
Bostic, W. C., Forest City	1905	1905
N. C. Med. Coll., 1905.		
Brockett, W. E., Caroleen	1915	....
Jeff. Med. Coll. of Phila., 1915.		
Gold, C. F., Ellenboro	1910	1910
Univ. of N. C., 1910.		
Harrell, L. B., Caroleen	1902	1904
Grant Univ., 1897.		
Harris, E. B., Rutherfordton	1885	1906
P. and S., Balt., 1876.		
Hemphill, C. H., Forest City	....	....
Hicks, Romeo, Henrietta, R. F. D.	....	1904
Southern Med. Coll., Atlanta, 1888.		
Lovelace, T. B., Henrietta, R. F. D.	1885	1904
P. and S., Balt., 1883.		
Norris, Henry, Rutherfordton	1907	1906
Univ. of Pa., 1896.		
Reid, G. P., Forest City	1894	1899
Univ. Coll. of Med., Va., 1895.		
Shull, J. R., Cliffside	1911	1912
Univ. of Pa., 1911.		
Smart, J. B., Forest City	1907	1911
Grant Univ., 1900.		
Thompson, J. B., Bostic, R. F. D. 1	1898	1904
P. and S., Balt., 1898.		
Thompson, W. A., Rutherfordton	1895	1904
P. and S., Balt., 1885.		
Twitty, J. C., Rutherfordton	1892	1906
Balt. Med. Coll., 1892.		
Williams, J. L., Union Mills	1913	....
Md. Med. Coll., 1913.		
Wiseman, C. B., Henrietta	1902	1902
P. and S., Balt., 1902.		

SAMPSON COUNTY SOCIETY.

President, John A. Stevens, Clinton	1883	1883
Jefferson Med. Coll., Phila., 1883.		
Secretary, Paul Crumpler, Clinton	1907	1907
Univ. of Tenn., 1907.		
Beard, G. C., Kerr, R. F. D.	1912	....
Univ. of Md., Balt., 1912.		
Butler, B. F., Clinton	1911	....
Univ. Coll. of Med., 1911.		
Crumpler, Paul, Clinton	1907	1907
Univ. of Tenn., 1907.		
Cooper, G. M., Raleigh	1905	1905
Univ. Coll. of Med., Va., 1905.		
Hardin, E. R., Clinton	1915	....
Univ. of Ga., Augusta, 1911.		
Hollingsworth, E. T., Ivanhoe	1912	1915
N. C. Med. Coll., 1912.		
Kerr, J. D., Jr., Clinton	1908	1909
Univ. of Md., 1908.		
Lee, R. E., Clinton	1896	....
Univ. of Md., Balt., 1896.		
Matthews, J. O., Clinton	1897	1898
Univ. Coll. of Med., Va., 1897.		

Name and Address.	*Licensed.*	*Joined State Society.*
Robinson, J. D., Ivanhoe	....	....
Sikes, G. L., Salemburg Univ. Coll. of Med., Va., 1900.	1900	1900
Sloan, Henry, Ingold S. C. Med. Coll., 1881.	1885	1885
Turlington, H. C., Cooper, R. F. D. Univ. Coll. of Med., Va., 1913.	1913	1914
Underwood, O. E., Roseboro Univ. Coll. of Med., Va., 1909.	1909	1910
Wilson, R. B., Newton Grove Ky. School of Med., 1889.	1889	1904
Wilson, T. H., Newton Grove Med. Coll. of Va., 1915.	1915	....

SCOTLAND COUNTY SOCIETY.

President, W. D. Shaw, Wagram P. and S., Balt., 1892.	1895	1904
Secretary, Peter McLean, Laurinburg Univ. of Md., 1906.	1907	1907
Cannady, N. B., Laurinburg	....	....
Erwin, E. W., Laurinburg Med. Coll. of S. C., 1912.	1912	1913
Gibson, J. S., Gibson Univ. of Md., 1905.	1905	1905
James, W. D., Laurinburg Jefferson Med. Coll., Phila., 1908.	1908	1908
John, Peter, Laurinburg Univ. of Md., 1897.	1897	1904
Livingstone, Everitt Univ. of Md., 1912.	1912	1912
McLean, Allen, Wagram Univ. of Md., 1908.	1908	1908
Pate, W. T., Gibson P. and S., Balt., 1895.	1895	1895
Prince, D. M. (Hon.), Laurinburg S. C. Med. Coll., 1871.	1871	1878
Wilcox, J. W., Laurel Hill Univ. of N. C., 1906.	1906	1906

STANLY COUNTY SOCIETY.

President,	....	....
Secretary,	....	....
Allen, J. A., New London Univ. Coll. of Med., Va., 1901.	1901	1906
Anderson, J. N., Albemarle Univ. of Md., 1895.	1895	1895
Dunlap, L. V., Albemarle Univ. of N. C., 1909.	1909	....
Hall, J. C., Albemarle Univ. Coll. of Med., Va., 1890.	1899	1899
Hathcock, T. A., Norwood Univ. of Md., 1893.	1893	1904
Laton, J. F., Albemarle N. C. Med. Coll., 1904.	1904	1908
Lyday, T. A., Stanly	....	....
Price, H. L., Locust N. C. Med. Coll., 1914.	1914	1915
Whitley, D. P., Albemarle Univ. of Md., 1889.	1890	1890

STOKES COUNTY SOCIETY.

Name and Address.	*Licensed.*	*Joined State Society.*
President, J. H. Ellington, Sandy Ridge P. and S., Balt., 1872.	1885	1904
Secretary, W. V. McCanless, Danbury P. and S., Balt., 1888.	1893	1904
Hill, L. H. (Hon.), Germanton Jefferson Med. Coll., Phila., 1861.	1877	1877
Jones, A. G., Walnut Cove Univ. of N. Y., 1868.	1894	1904
Martin, C. M., Danbury Univ. of Okla., 1915.	1915	....
McCanless, W. L., Danbury Univ. of N. Y., 1893.	1893	1904
Moir, S. A., Francisco P. and S., Balt., 1888.	....	1904
Moore, W. B., Smith P. and S., Balt., 1893.	1893	1904
Neal, J. W., Meadows P. and S., Balt., 1889.	1887	1904
Phillips, M. D., Dalton Univ. of N. Y., 1881.	1881	1904
Slate, W. C., Danbury Univ. of Tenn., 1903.	1903	....
Tuttle, R. G., Walnut Cove N. C. Med. Coll., 1909.	1909	1912

SURRY COUNTY SOCIETY.

President, J. B. Smith, Pilot Mountain P. and S., Balt., 1885.	1885	1896
Secretary, M. S. Martin, Mt. Airy Univ. Coll. of Med., Va., 1905.	1909	....
Ashby, E. C., Mt. Airy Univ. of Pa., Phila., 1914.	1914	....
Ashby, T. B., Mount Airy P. and S., Balt., 1885.	1885	1896
Baird, C. A., Mount Airy N. C. Med. Coll., 1904.	1909	1909
Flippin, J. M., Mount Airy P. and S., Balt., 1884.	1884	1893
Flippin, R. E. L., Pilot Mountain Balt. Med. Coll., 1892.	1897	1897
Flippin, S. T., Siloam N. C. Med. Coll., 1898.	1898	1898
Hollingsworth, E. M., Mount Airy P. and S., Balt., 1886.	1886	1904
Hollingsworth, R. E., Mount Airy Univ. Coll. of Med., Va., 1898.	1898	1898
Martin, J. H., Battleboro Univ. of Nashville, 1903.	1904	....
Reece, J. M., Elkin P. and S., Balt., 1886.	....	1904
Ring, J. W., Elkin P. and S., Balt., 1880.	1885	1904
Rowe, H. B., Mount Airy Univ. of Md., 1910.	1910	1912
Royall, M. A., Elkin P. and S., Balt., 1885.	1885	1891
Taylor, W. S., Mount Airy Jefferson Med. Coll., Phila., 1874.	1874	1894

Name and Address.	*Licensed.*	*Joined State Society.*
Wellborn, W. R., Elkin N. C. Med. Coll., 1905.	1908	1908
Woltz, J. L., Mount Airy Southern Med. Coll., Ga., 1897.	1902	1902

TRANSYLVANIA COUNTY SOCIETY.

President, C. W. Hunt, Brevard P. and S., Balt., 1880.	1880	1903
Secretary, E. S. English, Brevard Univ. of the South, 1901.	1902	1902
Grover, Chas., Roseman	....	....
King, M. M., Brevard Eclectic Coll., Ga.	1880	1903
Lyday, A. E., Penrose Tenn. Med. Coll., 1891.	1909	1900
Summey, Thos. J., Rosman Jeff. Med. Coll. of Phila., 1915.	1915	....
Wallis, W. J., Brevard P. and S., Balt., 1892.	1892	1903

TYRRELL COUNTY SOCIETY.

(See Washington-Tyrrell.)

UNION COUNTY SOCIETY.

President, R. L. Payne, Monroe Tulane Univ., 1911.	1911	1912
Secretary, H. D. Stewart, Monroe Univ. of Md., 1898.	1898	1898
Armfield, Romulus, Marshville Med. Coll. of Va., 1881.	1883	1904
Ashcraft, J. E., Monroe Univ. of N. Y., 1887.	1887	1888
Blair, M. P., Marshville Med. Coll. of Va., 1895.	1895	1895
Brooks, H. M., Olive Branch	....	....
Eubanks, J. B., Monroe Vanderbilt Univ., 1887.	1887	1904
Guin, L. E., Waxhaw N. C. Med. Coll., 1907.	1907	1908
Jerome, J. R., Wingate Univ. of Md., 1890.	1890	1904
Nance, G. B., Monroe Jefferson Med. Coll., Phila., 1885.	1885	1885
Perkins, D. R., Marshville Balt. Med. Coll, 1903.	1906	1906
Stevens, S. A., Monroe Univ. of Md., 1900.	1898	1898

VANCE COUNTY SOCIETY.

President, F. E. Perkins, Henderson Univ. of N. Y., 1905.	1905	1911
Secretary, N. H. Crews, Henderson	....	....
Absher, D. C., Henderson Univ. of Md., Balt., 1909.	1909	....
Allen, B. G., Henderson Bellevue Med. Coll., 1904.	1904	1904

Name and Address.	*Licensed.*	*Joined State Society.*
Barr, T. E., Townsville	1914	1915
Univ. of Va., 1908.		
Bass, H. H., Henderson	1899	1900
Univ. of Md., 1899.		
Chapin, W. B., Townsville	1909	1909
Univ. of N. C., 1909.		
Fenner, E. F., Henderson	1906	1907
Univ. of Md., 1905.		
Furman, W. H., Henderson	1910	....
Jefferson Med. Coll., Phila., 1910.		
Harris, F. R., Henderson	1882	1883
Univ. of Va., 1881.		
Henderson, T. B., Henderson	1914	1915
Med. Coll. of Va., 1906.		
McIntosh, L. C., Henderson	1914	....
P. and S., Atlanta, 1913.		
Upchurch, R. T., Henderson	1908	1909
Jefferson Med. Coll., Phila., 1908.		

WAKE COUNTY SOCIETY.

President, J. M. Judd, Cardenas	1899	1899
Balt. Med. Coll., 1897.		
Secretary, W. C. Horton, Raleigh	1896	1896
P. and S., Balt., 1897.		
Abernethy, C. O., Raleigh	1906	1906
Univ. of N. C., 1906.		
Adams, R. K., Raleigh	1912	....
Jeff. Med. Coll., Phila., 1912.		
Anderson, Albert, Raleigh	1888	1888
Univ. of Va., 1888.		
Barbee, G. S., Wendell	1910	....
Univ. of N. C., 1910.		
Battle, K. P., Jr. (Hon.), Raleigh	1882	1882
Univ. of Va., 1881; Bellevue Hosp. Med. Coll., 1882.		
Bell, C. W., Raleigh	1915	1916
Coll. of P. and S., Balt., 1914.		
Bell, G. M., Wakefield	....	1903
P. and S., Balt., 1885.		
Blalock, N. M., Gully's Mills	1890	1890
P. and S., Balt., 1890.		
Buffalo, J. S., Garner	1900	1904
Balt. Med. Coll., 1900.		
Burtt, B. W., New Hill	1886	1904
P. and S., Balt., 1886.		
Campbell, A. C., Raleigh	1910	1912
Univ. of N. C., 1910.		
Carroll, E. D. D., Raleigh	1900	1900
Woman's Med. Coll., N. Y., 1895.		
Carstarphen, W. F., Wake Forest	1911	....
Jefferson Med. Coll., Phila., 1904.		
Caveness, Z. M., Raleigh	1903	1903
Univ. of N. C., 1903.		
Cheek, C. E., Fuquay Springs	1912	....
Univ. Coll. of Med., Va., 1912.		
Ferebee, E. B., Raleigh	1885	1903
P. and S., Balt., 1885.		
Ferrell, John A., 61 Broadway, New York City	1907	1908
Univ. of N. C., 1907.		

Name and Address.	*Licensed.*	*Joined State Society.*
Gibson, M. R., Raleigh	1905	1908
Univ. of N. C., 1905.		
Goodwin, A. W., Raleigh	1889	1889
Bellevue Med. Coll., 1887.		
Haywood, Hubert, Raleigh	1889	1889
Bellevue Med. Coll., 1879.		
Haywood, Hubert, Jr.	1909	....
Univ. of Pa., 1909.		
Hester, J. R., Knightdale	1910	1911
Univ. of N. C., 1910.		
Horton, M. C., Raleigh	1911	....
Univ. Coll. of Med., Va., 1903.		
Jenkins, C. L., Raleigh	1890	1892
N. Y. Univ. Med. Coll., 1890.		
Johnson, R. W., Apex	1901	1901
Univ. of Tenn., 1900.		
Jordan, T. M., Raleigh	1881	1881
P. and S., Balt., 1881.		
Judd, E. C., Raleigh	1911	....
Univ. of Pa., 1911.		
Knox, A. W., Raleigh	1878	1880
Bellevue Med. Coll., 1874.		
Lewis, R. H. (Hon.), Raleigh	1877	1877
Univ. of Md., 1871.		
Lowery, J. R., Raleigh	1904	....
Univ. of Md., 1904.		
McCullers, J. J. L., McCullers	1886	1886
P. and S., Balt., 1886.		
McDowell, F. C., Zebulon	....	....
McGee, J. W., Jr., Raleigh	1888	1888
Bellevue Med. Coll., 1888.		
McKee, J. S., Raleigh	1908	1908
Univ. of Md., 1907.		
Moore, J. L., Wendell	1886	1892
P. and S., 1886.		
Noble, R. P., Raleigh	....	....
Pendleton, A. S., Raleigh	1898	1899
Univ. of Pa., 1895.		
Penny, J. A. J., Vanteen	....	1904
Univ. of N. Y., 1861.		
Powers, J. B., Jr., Wake Forest	....	....
Rankin, W. S., Raleigh	1901	1901
Univ. of Md., 1901.		
Ray, John E., Jr., Raleigh	....	....
Cornell Univ., 1912.		
Ray, O. L., Raleigh	1899	1904
Univ. Coll. of Med., Va., 1899.		
Riggsbee, A. E., Morrisville	1909	....
Univ. of N. C., 1909.		
Rogers, J. R., Raleigh	1886	1904
P. and S., Balt., 1886.		
Root, A. S., Raleigh	1911	....
Univ. of Pa., 1911.		
Royster, H. A., Raleigh	1894	1895
Univ. of Pa., 1894.		
Royster, W. I. (Hon.), Raleigh	1869	1870
Bellevue Med. Coll., 1869.		
Shore, C. A., Raleigh	1909	1909
Johns Hopkins, 1907.		

Name and Address.	*Licensed.*	*Joined State Society.*
Sorrell, L. P., Raleigh	....	1904
Med. Coll. of Va., 1875.		
Stancell, W. W., Raleigh	1906	....
Univ. Coll. of Med., Va., 1906.		
Strickland, J. A., Zebulon	1909	1910
Univ. of N. C., 1909.		
Templeton, J. M., Cary	1882	1904
Balt. Med. Coll., 1882.		
Thompson, S. W., Neuse	....	1904
Med. Coll. of Va., 1875.		
Underhill, H. P., Wendell	1901	1901
Univ. Coll. of Med., 1901.		
Watson, J. B., Raleigh	1908	1908
West, L. M., Raleigh	1912	1915
Jefferson Med. Coll., Phila., 1912.		
Wilkerson, C. B., Apex	1906	1907
Univ. of N. C., 1906.		
Wilkerson, T. E., Raleigh	....	....
Wright, J. B., Raleigh	1899	....
Univ. Coll. of Med., 1899.		
Young, L. B., Rolesville	1886	1907
P. and S., Balt., 1886.		

WARREN COUNTY SOCIETY.

President, P. J. Macon, Warrenton	1883	1883
Univ. of Md., 1883.		
Secretary, C. H. Peete, Warrenton	1906	1906
Univ. of Va., 1903.		
Holt, T. J., Wise	1904	1904
Med. Coll. of Va., 1904.		
Macon, G. H., Warrenton	1910	1910
Univ. Coll. of Med., Va., 1910.		
Norton, N. D., Norlina	1909	1911
Univ. Coll. of Med., Va., 1909.		
Perry, M. P. (Hon.), Macon	1884	1884
P. and S., Balt., 1884.		
Rogers, W. D., Warrenton	1913	1915
Jefferson Med. Coll., Phila., 1913.		

WASHINGTON-TYRRELL COUNTY SOCIETY.

President, M. H. Hardison, Creswell	1871	1904
Washington Univ., Md., 1870.		
Secretary, W. H. Ward (Hon.), Plymouth	1886	1900
Univ. of Md., 1881.		
Disosway, A. W., Plymouth	1905	1908
Univ. of Md., 1905.		
Flowers, C. A., Columbia	1907	1907
P. and S., Balt., 1905.		
Flowers, C. E., Columbia	1915	....
Med. Coll. of Va., 1913.		
Gilmer, B. H., Plymouth	1910	1910
Univ. Coll. of Med., Va., 1903.		
Halsey, B. F., Roper	1894	1894
Vanderbilt Univ., 1893.		
Hassell, J. L., Creswell	1886	1908
P. and S., Balt., 1886.		
Marriner, N. B., Belhaven	1903	1908
Univ. Coll. of Med., Va., 1903.		

Name and Address.	*Licensed.*	*Joined State Society.*
Speight, J. W., Roper	1885	1908
Kentucky School of Med., 1885.		
Spruill, J. L., Columbia	1895	1908
Univ. of Md., 1895.		

WAYNE COUNTY SOCIETY.

President, O. C. Daniels, Goldsboro	1903	....
Med. Coll. of Va., 1903.		
Secretary, T. L. Ginn, Goldsboro	1901	1904
Med. Coll. of Va., 1901.		
Bizzell, T. M., Goldsboro	1908	1908
Univ. of Md., 1908.		
Brothers, J. E., Goldsboro	1874	1910
Bellevue Med. Coll., 1874.		
Cobb, W. H., Goldsboro	1889	....
Jeff. Med. Coll. of Phila., 1889.		
Cox, B. W. P., Goldsboro	1915	....
N. C. Med. Coll., 1915.		
Faison, W. W. (Hon.), Goldsboro	1883	1904
Jeff. Med. Coll., 1878.		
Irvin, Henderson, Eureka	....	....
Miller, R. B., Goldsboro	1900	1901
Med. Coll. of Va., 1898.		
Person, E. C., Pikeville	1904	1904
Med. Coll. of Va., 1904.		
Person, H. M., Goldsboro	....	....
Robinson, M. E., Goldsboro	....	1880
Wash. Univ. Balt., 1870.		
Smith, R. A., (Hon.), Goldsboro	1882	1882
Vanderbilt Univ., 1879.		
Smith, W. H., Mount Olive	1907	1908
Univ. of Pa., 1906.		
Spicer, John, Goldsboro	1890	....
Bellevue Hosp. Med. Coll., N. Y., 1889.		
Spicer, Richard W., Goldsboro	1910	....
N. C. Med. Coll., 1910, Univ. of Pa., 1911.		
Sutton, W. G., Seven Springs	1889	1896
Jeff. Med. Coll., 1889.		

WILKES COUNTY SOCIETY.

President, W. P. Horton, North Wilkesboro	....	....
Secretary, C. S. Sink, North Wilkesboro	1912	1912
N. C. Med. Coll., 1912.		
Pegram, R. W. S., Wilkesboro, R. F. D. 2	1894	1908
Balt. Med. Coll., 1892.		
Somers, L. P., Osbornville	1889	1904
Turner, J. M., North Wilkesboro	1885	1904
Univ. of Louisville, 1881.		
White, J. W., Wilkesboro	1889	1890
Jefferson Med. Coll., Phila., 1889.		

WILSON COUNTY SOCIETY.

President, D. H. Reed, Lucama	1904	1904
George Washington Univ., 1901.		
Secretary, C. L. Swindell, Wilson	1909	1909
Univ. of Md., 1909.		

Name and Address.	*Licensed.*	*Joined State Society.*
Anderson, W. H., Wilson	1904	1903
Univ. of Va., 1902.		
Anderson, W. S., Wilson	1880	1880
Washington Univ., Balt., 1868.		
Barnes, B. F., Elm City	1902	1902
Univ. of Md., 1902.		
Best, H. B., Wilson	1907	1907
Univ. of N. C., 1907.		
Dickinson, E. T., Wilson	1895	1895
Med. Coll. of Va., 1895.		
Eagles, C. S., Saratoga	1909	1909
Univ. of N. C., 1909.		
Grady, L. V., Taylors	1913	1914
N. C. Med. Coll., 1913.		
Harrison, J. S., Elm City	1905	1908
Med. Coll. of Va., 1903.		
Herring, B. S., Wilson	1901	1901
Univ. of Mich., 1900.		
Hoover, H. R., Wilson	1892	....
Balt. Med. Coll., 1891.		
Lamm, I. W., Lucama	1899	1899
Univ. Coll. of Med., Va., 1899.		
Lewis, G. W., Wilson	1885	1892
Univ. of Md., 1886.		
Moore, C. E. (Hon.), Wilson	1875	1875
Bellevue Med. Coll., 1875.		
Moore, E. G., Elm City	1883	1890
Univ. of Md., 1883.		
Moore, K. C., Wilson	1909	1910
Univ. of Mich., 1909.		
Person, T. E., Stantonburg	1911	....
N. C. Med. Coll., 1911.		
Powell, H. H., Stantonsburg	1911	1914
Med. Coll. of Va., 1911.		
Saliba, M. C., Wilson	1910	1910
Balt. Med. Coll., 1897.		
Smith, G. A., Black Creek	1893	1894
Louisville Med. Coll., 1887.		
Williams, A. F., Wilson	1901	1901
Univ. of Md., 1901.		

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HEALTH OFFICERS' ASSOCIATION

TRANSACTIONS

OF THE

NORTH CAROLINA

HEALTH OFFICERS' ASSOCIATION

—

SIXTH ANNUAL SESSION

—

DURHAM, N. C., MONDAY, APRIL 17, 1916

OFFICERS 1917

President—Dr. Arch Cheatham.....Durham
Vice-President—Dr. D. C. Absher.....Henderson
Secretary-Treasurer—Dr. George M. Cooper.....Raleigh

OFFICERS 1916

President—Dr. D. E. Sevier.....Asheville
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Secretary-Treasurer—Dr. George M. Cooper.....Raleigh

TRANSACTIONS

OF THE

NORTH CAROLINA HEALTH OFFICERS ASSOCIATION

SIXTH ANNUAL SESSION

Dr. Arch Cheatham, Durham: The Sixth Annual meeting of the North Carolina Health Officers' Association will come to order.

We will be led in prayer by Rev. Costen J. Harrell, pastor Mangum Street M. E. Church, Durham.

INVOCATION.

Almighty, God, our Heavenly Father, we render unto Thee our thanks in that Thou hast so ordered the world that we may coöperate with Thee in the work which our hands find to do. We praise Thee that in our several callings Thou dost seek to have us work with Thee. When these things come to our remembrance a sweet sacredness is cast about our common duties.

We thank Thee, Almighty God, for the great army of men throughout this commonwealth who minister to the infirmities of our bodies. As they are gathering in our city this day to take into advisement matters that have to do with the common good, let Thy blessings, Lord, attend them. Guide them in their deliberations. May their work be begun, continued, and ended in Thee. Give to them, we beseech Thee, clear minds and hearts filled with the Spirit of the Lord Christ. And when they have returned to their several posts of duty, grant that they may work as ever in their great Taskmaster's eye.

We beseech Thee that Thou wilt bless each one of us in our personal relation with Thee. Stir Thou within our hearts, we humbly pray, a living faith. Give to us individually such a portion of Thy Spirit that we may seek above all things else to have Thy will done in our lives.

Vouchsafe Thy blessings, we humbly pray, upon our State and Nation. Grant that we may become a shining light unto the nations of the earth. Guide all who are in places of authority, that they may rule with soberness and in the fear of God.

Let Thy Kingdom come, Thy will be done on earth as it is in Heaven. These things we ask through Jesus Christ, our Lord, Amen.

ADDRESS OF WELCOME.

Dr. J. M. Manning, Durham.

Gentlemen of the Association: The first thought that came into my mind, after reading a letter from Dr. G. M. Cooper, your most efficient secretary, asking me to deliver the address of welcome on this occasion, was what could I say that would be worth your while. The citizenship of this little bustling, noisy, bell ringing, whistle blowing, city of Durham is proud to be hospitable to the stranger within her gates.

The great majority of our people begin work when the bells on our factories ring in the hour of early morn, and cease their arduous toil to the music or the whistles as they peal forth the close of another day. We have few loafers in the city of Durham, it is a notorious fact that everybody works here, even father. You will observe that I am not yet an old man, but I well remember when Durham was only a station on the old North Carolina Railroad. Trains going east towards the city of Raleigh, or going west towards the city of Greensboro stopped here only long enough for the engines to get a drink of water. A distinguished physician, now of blessed memory, whose renowned life was spent in the historic town of Hillsboro, and whose ability and learning reflected honor on the medical profession in the State, was in the habit of saying to his patients when passing through Durham on the trains to beware, breathe only when you have to, no long breaths, but be content with short ones only, for you might inhale enough of the miasma and impure air of Durham to render your case hopelessly fatal. I have often wondered what that distinguished gentlemen would say should he arise from his last resting place, motor to Durham on a 1916 model, over a sand clay road, and view the little railroad station today, he would find a city of some thirty thousand population, the third largest, so the United States census says, in the State, in taxable values the first in North Carolina, collecting from the citizenship over $250,000 in annual taxes, over 3,000 children attend the best equipped and most comprehensive of public schools in the State, the birth place of that great tobacco manufacturing corporation, whose wealth and power and marvelous success has made the name of Durham a synonym for business achievement in every corner of the civilized globe, a system of hosiery mills second to none in the nation, who are now furnishing thousands of pairs of hosiery to the soldiers on the bloody battle fields of Europe, the home of that great chain of Erwin Cotton Mills, whose products sweep the corners of the earth,

and last, but by no means least, your speaker points with pardonable pride to our well organized health department, which, operating under a special act of the Legislature, embraces under its supervision not only the city of Durham, but the county as well. In this department we have a well furnished, up-to-date laboratory, directed by an efficient bacteriologist, eight district nurses, not all directly employed by the city, it is true, but energetically coöperating with the health department in the great work of educating the masses in matters of sanitation, in the care of the sick, and in promoting every kind of community work, which has for its purpose the betterment and happiness of our people. Regulating and energizing these various departments of public health is a whole-time health officer of whom the county and city of Durham are justly proud. The good he has accomplished speaks for itself, in the reduction of our mortality rate. What he has done and what he expects to do in the future is a man's job, for the State as well as the nation is beginning to realize today, as never before, something of the possibilities to be attained in the conservation of the health of her people. The truth contained in the old Latin axiom, *"In mens sana in corpore sano"* was never so potential in diverting the thought of the world as it is today and never before in the history of the nation has there been such an active and intelligent awakening along the lines of sanitation and preservation of human life. In the great world movement for the betterment of the race I am proud to say that the medical profession is well in the lead. The physician in every community stands at the head of every movement which has for its object the eradication and prevention of disease.

Did it ever occur to you that Boards of Health, and whole time health officers in their efforts to eradicate preventable diseases are in a way antagonistic to the business interests of the doctor and the proportion to the success attained by them is the loss to the general practitioner in the matter of dollars and cents? And yet this general practitioner, oblivious of his own loss of business, is the health officer's greatest asset in his efforts to prevent disease. Did you ever hear of lawyers combining to prevent litigation? Or business men organizing to reduce their individual profits? When the lion and the lamb lie down in peace and the lamb escapes the stomach of the lion then these things may come to pass.

In conclusion, let me assure you that Durham extends your Association a most cordial welcome and may I entertain the hope that your deliberations may suggest new and more efficient methods in the fight now on against preventable disease.

RESPONSE TO ADDRESS OF WELCOME.

Dr. L. B. McBrayer, Sanatorium, N. C.

Mr. Chairman and Gentlemen: We are glad to be here, I assure you, and are glad to hold this meeting and the meetings that are to follow here among the enterprising people of Durham, among the enterprising medical profession of Durham. We appreciate most heartily the words of welcome that have been so kindly and so eloquently presented to us by Dr. Manning and we trust that his hopes may be realized, that the meeting shall be productive of great good, and as we meet together and compare notes and tell each other of our accomplishments and failures, and as we present the advance of writers on the subject of preventive medicine as well as our own experiences, it is worthy of note, as suggested by Dr. Manning, that this is not only for the benefit of the physician, but for the benefit of the people of Durham and Durham County, and all other counties of North Carolina. And it is a pleasure to note also that the work of the members, of the individual members, of this North Carolina Health Officers' Association, is not confined to Durham County nor the other counties in which we are laboring, and by State lines, but the progressive work that is being done in North Carolina by the Health workers, one and all, is being watched with a great deal of interest by people in other States, in fact in every other State, in our Union, and some of the work has at least been copied as far away as Canada. It is pleasing then for us to know that the good we do not only redounds to the benefit of our own people but extends wherever humanity's cry is heard.

On behalf of the North Carolina Health Officers' Association, we extend our thanks and appreciation for the cordial welcome received. (Applause.)

PUBLIC HEALTH ACTIVITIES IN NORTH CAROLINA.

D. E. Sevier, M.D., President, Asheville, N. C.

Mr. Chairman, Ladies and Gentlemen: To be the head of this Association is an honor for which I feel deeply grateful. I desire to express to the Health Officers' Association of North Carolina my sincere appreciation of the confidence you have so kindly and generously reposed in me. My greatest ambition has been to maintain the excellence of this Association and the high standard of my distinguished predecessors.

We have again gathered for the purpose of discussing and making definite plans for the advancement of rural sanitation in North Carolina which is one of the most vital questions of the present day. It is impossible to give an adequate idea of the magnitude of the health work done in many of the counties of North Carolina during the past year, because one must see to believe. When you consider the county-wide interest and the thousands of dollars spent yearly for the perfecting of permanent rural sanitation and knowing that the members of this Association are the men who are actually doing the work in the broadest sense of the word, you should be able to form some conception of the opportunities for advancement afforded by this Association. It is the full time Health Officer as he makes his daily rounds instructing and educating along the lines of rural sanitation, who is laying the foundation for all improved health conditions in North Carolina. In short, the entire knowledge and experience of health work in the various counties of the State is embodied in this Convention. It is to be hoped that out of the great mass of information at our disposal we shall be able to gather much that will be of immediate value to the individual Health Officer of the various counties. It is probably true that in no other department of learning has the general public been more enlightened than through our Medical Profession, and more particularly through the constant efforts of the individual Health Officer. The most essential step in public health work and the fountain head of health lies in the establishment of a full time Health Officer in each county of the State who shall take charge of the sanitation in an intelligent and energetic way and stamp out all communicable and infectious disease. This would substantially reduce the death rate within a very short time and place North Carolina first along health lines. The elevation and instruction of the school teacher in regard to the great importance of health and the prevention of disease; better school buildings, thoroughly equipped with the necessary modern sanitary school appliances should be our aim. We may then picture to the pupil the great lesson touching on sanitation in an impressive way. I am sorry to state that the sanitary conditions of the schools and surroundings in many of the counties are far from what they should be, having for drinking water supply, springs which overflow; open wells unprotected, with but few surface closets and those in an unsanitary condition. These conditions are a shame and disgrace to a civilized people. Unless this condition is taken in hand and corrected by a general law covering the State, it will continue in the same way for years to come, just as it has existed in the past, and this is a condition which our State Board of Health should remedy at an early date.

Great health work has been accomplished in North Carolina during the past year due to the efforts of the County Health Officers under the supervision of that tireless health worker, Dr. W. S. Rankin, Secretary of the State Board of Health; Dr. Rankin has associated with him a genius in the person of Dr. G. M. Cooper, Chief of the Bureau of Rural Sanitation, who has labored day and night in the interest of health and in order to render assistance to the Health Officers. I am quite sure I express the true sentiment of each physician as well as the Health Officers of North Carolina, when I say we have had great assistance rendered the profession as well as the individual citizen by that able, courteous and greatly appreciated chemist, Dr. C. A. Shore, Chief of the State Laboratory of Hygiene. I feel that our health work would be greatly handicapped without the help of Dr. Shore. With the coöperation of these gentlemen the Health Officers of North Carolina were enabled to conduct the memorable Anti-Typhoid vaccination campaign which was so ably accomplished during the past year; they administering the third treatment which is supposed to render the patient immune. More than one hundred thousand people in North Carolina were treated, which is fully one twenty-third of the entire population. This work was accomplished by the joint State and County authorities and the greater part of the work was done in twelve counties. These campaigns have done a great deal of good, not only in rendering the people immune from typhoid, but the health talks delivered along all lines have had a far reaching effect and have done more good than can ever be estimated. It is a fact that very few in the rural sections will take the time and pains to read the shortest article on health when they will gladly listen to your talk and many will carry what you have said into effect.

The individual health officer; the members of the Legislature as well as the people are looking to our Association for enlightenment and instruction in enacting proper health laws for North Carolina; therefore, we should not allow modesty to prevent our asking our representatives to enact such health laws as are so badly needed and would prove so beneficial to the general public. What we need most is more members of our profession representing us in the General Assembly, enacting such laws as our Association might agree upon, and who would then see that they are carried into effect. There are golden opportunities awaiting many of our talented medical men, and while they might not at the time crown themselves with glory, high honors would most assuredly come in the course of time. The laws of the various counties are enacted by the County Boards of Health so you can readily see how easily many counties may proceed with practically no laws, while others

have the most rigid. This is largely responsible for the spread of communicable diseases and the present high death rate in North Carolina; this death rate could be greatly decreased if the laws were uniform throughout the State. Take a county with rigid laws, surrounded by counties with no laws, as we have it in many places, you will find the Health Officers overworked and unable to prevent the spread of disease and unable to reduce the death rate owing to the negligence of other health boards and officials of other counties. It is an evident fact that the methods and laws now in operation are far from what they should be, and I can see but one solution, namely,—have our Association formulate such rules and regulations as would be applicable to all counties and secure their enactment by the State Legislature, allowing our County Health Boards to remain, that each county might have the health laws still more rigid. We should give the State Health Board power to force the appointment of a health officer in each county, and when this is done rural sanitation will be placed on a firm and lasting basis; the spread of disease will cease, the death rate will be greatly reduced and North Carolina will claim her place at the head of the column along health lines.

Up to within a few years ago but little was said or done along the line of handling or preventing the spread of tuberculosis. Today there is practically no difference of opinion as to the various modes of infection which usually take place through the respiratory and digestive tracts. This matter is naturally attracting the closest attention of our best and most enlightened citizens. This has been brought about mainly in North Carolina by the efforts of the Health Officers' Association, and the most excellent work which has been accomplished by that great health advocate, Dr. L. B. McBrayer, who is now in charge of the State Sanatorium for tuberculosis. It is an undisputed fact that since this institution has been placed under the management of Dr. McBrayer, it has been elevated to an institution that is well known by each and every household in North Carolina, a home of sunshine, happiness and contentment; an institution of which North Carolina feels justly proud.

We recognize the tubercle baccillus as the most deadly germ which science has to combat; naturally it becomes our duty to resort to such measures as will prevent the continuous spread of this most deadly disease. I hardly think it necessary for segregation, but I believe each and every case should be reported and a heavy penalty placed upon the physician in charge should he fail to report the case as required by law, or fail to instruct the patient in the most minute detail as to the necessary precautions. It has been said that a careful tuberculous

patient is not a menace to health. He is not, but how many do you suppose are careful? Perhaps not one in a hundred. Many practitioners never even so much as advise their patients to use the sputum cup, and not one in a hundred instructed to protect the mouth with a handkerchief when coughing, or advised as to proper sleeping quarters or disinfecting the hands, all of which is very necessary. How can we accomplish this great end unless we have the coöperation of the attending physician and the ones vitally concerned? It is highly essential that we have such laws enacted, that our physicians and members of a tubercular family would be required to report all cases that they might be properly instructed and not allowed to become a menace to other members of the household. It is astonishing to know how often cases have gone undetected until they are in the last stages of the disease and have reached a point where the condition cannot be arrested, finally becoming county charges and a menace to public health in the locality in which they live.

Now what are we to do in a family with limited means, though they have ordinary intelligence, if they are unable to employ a physician or purchase the necessities of life, to say nothing of the essentials in the sick room? I might say here that it has been suggested that these cases be cared for at the various county homes. This is impracticable for many reasons: It is impossible to get this class of patients to become charges of a county institution. Again this would require many counties to erect suitable quarters compelling them to keep a resident physician in attendance at all times, with two or more competent nurses which would naturally cost a large sum of money; the worthy and unfortunate subjects must be cared for, and how is the most reasonable way to do it? We realize that we have more than fifteen thousand open cases of tuberculosis in North Carolina, and many of them a menace to health, with an institution only capable of caring for ninety cases instead of thirty times this number.

The only solution of this question and the sane thing to do is for the Legislature to appropriate a sufficient sum to house and care for the helpless. Under the present method each county has to pay one dollar per day per patient, and this method naturally deprives many of having the comforts of this institution where they would be delighted to go. I would be glad to see North Carolina appropriate five hundred thousand dollars, or more if necessary, yearly for this work, and stop the spread of tuberculosis in this State.

The recent admission of North Carolina to the registration area for vital statistics marks the passing of a milestone in North Carolina health work which has placed the gauge of measurement for the value of all

public health endeavor. The medical profession of North Carolina have asked and urged for the vital statistics law. Now we not only have it, but we have the Federal Government standing behind it and saying to the world—*"They are correct, we vouch for them."*

Our average efficiency as graded from Washington on vital statistics was rated by the United States authorities as 94.62 the minimum of 90 admits to registration area. Again our death rate for 1914 graded rated, I mean by the United States, was only 13.6 about the same as the nation at large, so here is another step in the direction of having the United States Government Authorities to prove the South is not a pest hole-of disease to be avoided.

Dr. G. M. Cooper, Raleigh: Before reading my report, I want to make two or three announcements. One is that tonight after the papers, the address of Dr. McBrayer and Dr. Cyrus Thompson. Immediately following Dr. Thompson's address, we will have a demonstration of moving pictures by Dr. J. C. Braswell, of Nash County, with two reels, for about twenty or thirty minutes. Immediately after that, Mr. Booker will show about two reels, demonstrating a method of teaching public health that he has recently devised. This will be very interesting, and I wish you would tell all the doctors in Durham that it will interest them, and it will be open to the general public. I do not know whether we can have the meeting here. Mr. Booker, there is not room here, is there? We will announce this afternoon all that. Either one will be a big attraction.

Also this afternoon, by request, I am down here on a paper "what the State Board of Health Can Offer." In connection with this paper, Dr. C. A. Shore will demonstrate his new method of making smallpox vaccines whereby the greatest objection is removed, that is, the big running sore and local trouble that follows. He thinks the new method will obviate all that to a great extent. He is going to demonstrate some cases. That is a matter of vital interest to every doctor in North Carolina. I hope, Dr. Manning, you will tell all the doctors. After my paper Dr. Shore will make this demonstration and this explanation, which will be very interesting.

REPORT OF SECRETARY-TREASURER NORTH CAROLINA HEALTH OFFICERS' ASSOCIATION.

I have sent out two hundred and fifty multigraph and individual letters to boards of commissioners and county health officers and county physicians regarding the annual meeting. I have had official stationery printed for the President, vice-President, and Secretary.

The cost of the above, with the consent of Dr. W. S. Rankin, has been borne by the State Board of Health.

This is done for the reason that it is recognized that this Association is a great factor in aiding in the diffusion of public health knowledge among all the people of the State.

I have on hand in bank at Raleigh, April 1st, the sum of twenty-two dollars and sixty-six cents.

We are deeply indebted to the Medical Society of North Carolina for furnishing us a stenographer, and for publishing our transactions free in the past.

G. M. Cooper, *Secretary-Treasurer.*

APPOINTMENT OF COMMITTEES.

Nominating Committee—Dr. L. B. McBrayer, Chairman; Dr. C. V. Reynolds, Dr. E. F. Strickland.

Committee on Resolutions—Dr. Arch Cheatham, Dr. J. W. Halford, Dr. C. T. Nesbitt.

Auditing Committee—Dr. J. H. McCracken, Chairman, Dr. W. M. Jones, Dr. C. Daligny.

PRESENT STANDARDIZATION OF COUNTY HEALTH WORK IN NORTH CAROLINA.

M. T. Edgerton, Health Officer, Pitt County.

At this time county health work is in its plastic stage. Most organized health work is, and always has been in cities. Methods applicable to cities will not always prove suitable in rural districts. In many instances the needs in the country are even greater than in the towns. Likewise the obstacles to overcome are greater in the country than in the towns. We who are engaged in this work are keenly interested in improving our methods in any way if thereby we can accomplish more.

No one can say now just what methods will finally prove most efficacious. Those that will be finally adopted will have to stand the test of efficiency in actual work. It is a question whether a pattern can be cut which will fit every local condition in every county in North Carolina. Just so long as the financial support of county health work is entirely local just so long will local influences affect the methods of work. For under these conditions public sentiment guides rather than your better judgment. Once you could get health work supported by the State, you would have a big obstacle removed from getting uniform methods of County Health Work. Each County Health Officer would occupy a position in the State analogous to the position occupied by a Marine Hospital physician in his relationship to the U. S. Government. Central and uniform methods could be adopted and be carried out without fear or favor. Even then certain local modifications would have to be made to suit local conditions.

We have plenty of health literature on the problems in the towns, but very little on problems in the country. A good monthly journal devoted to country health problems would undoubtedly prove of considerable mutual benefit to the County Health Officers of the State. The people of the State need to know the laws of hygiene and sanitation, and the health officers need to know the best methods of teaching these laws.

Another factor which detracts from the efficiency of county health work is that the duties of county physician fall to the lot of the health officer. This not only takes him from his other work, but it also makes it impossible that he can always be sure he can fill any appointment he may have. Ultimately it will be found that it is more profitable to let practicing physicians do the emergency work at least. In the beginning until the health work gets well under way, most counties will let the health officer perform the duties of County Physician.

With one health officer in charge of a county, the large area which he covers makes it necessarily follow that several factors come into play and affect the results of the work. It is manifestly impossible that one man unaided can bring about great reforms in health work. In every field of his work he must have the active coöperation of those with whom he works in that field. To get the fullest and best coöperation, his fellow workers must be conversant on health problems. There are several different phases of county health problems which perhaps had better be taken up separately.

School Work. With twenty per cent of the children defective in the eyes, ears, nose or throat, and with an equal number infected with hookworm is it any wonder that many children fall behind in their school work? It is fairly easy to detect these defects and notify the parents of the children. The problem is to get the parents to realize how harmful the defects are to the child and thus get the defects corrected. Ignorance and poverty cause thousands of children in North Carolina to be handicapped in their school work by defects which can be corrected. Any system devised will always be blocked as long as the parents fail to realize the true significance of the defects.

One of the greatest factors in the school work is the teacher. In the first place, she must have definite knowledge of the common laws of hygiene and sanitation, and then she must teach these principles to the children and, through the children, the parents. Each teacher should consider herself the health officer for that particular school district, and she should not only be a model in personal cleanliness and neatness, but she should see to it that her school house is kept sanitary at all times and thus instill into the minds of the children ideas of personal cleanliness and sanitary home surroundings. It is a very easy task for a mediocre health officer to get good results where the teacher is conversant on health matters and interested in the work while it is a herculean task to do much when the teacher is ignorant and indifferent towards the work. The normal schools and colleges should devote more and more time to hygiene and sanitation. This is essential to intelligent health work in the schools of the State.

Contagious Diseases. The handling of most of the contagious diseases rests with the public and the successful stamping out of the particular disease will depend almost entirely upon the attitude of the people to that particular disease. Smallpox, mild as it generally is, will cause a whole community to become alarmed and go to all sorts of means to prevent its spread, and then this same community will view whooping cough with apathy and indifference while it spreads through the town. The explanation is the answer to handling of the contagious diseases.

It is all a matter of the people being educated up to the dangers of smallpox (as it was twenty years ago) and not being educated up to the dangers of whooping cough. Few people realize that about twenty-five people die with whooping cough to one with smallpox.

While most of us agree that vaccination is the only effective means of controlling smallpox, and that proper quarantine regulations will generally control diphtheria and scarlet fever, I wonder if there is any one who will claim that he can limit the spread of whooping cough to any degree. It is a deplorable fact that there are difficulties in the way of controlling whooping cough which are almost insurmountable. The difficulty in diagnosis in the early and most contagious stage, and the tendency of the parents to conceal it are two factors which are hard to circumvent. The difficulties in the handling of measles are perhaps almost as great. Until we can get a specific vaccine for these two diseases to use as a preventive, their control will be difficult.

The efficient control of all the contagious diseases is largely dependent on the hearty coöperation of the medical profession. In some instances this is not given as freely as it might be, but in time the delinquent ones will be forced into line by the demands of public sentiment.

I question the feasibility of gaining this coöperation by legal procedure. The difficulty of conviction and the antipathy produced would be factors which would make prosecution undesirable.

General Sanitary Measures. The improvement of sanitary conditions in the town and in the country meet with several obstacles. In the first place there is the lack of appreciation of the real benefits to be derived from good sanitary surroundings, and in the second place, the financial conditions of many people are such that it is practically impossible to improve on the existing conditions. It is a point that is not generally dwelt upon, but poverty is at the bottom of a large percentage of the ill health and poor sanitary conditions in the State. The general prosperity of a country affects the health conditions of that country. Typhoid vaccine may keep a man from having typhoid fever, but it will not take the place of good food.

In a word improved sanitary conditions will only be obtained after the public is educated up to the dangers of their unsanitary conditions. It is a gradual process of creating a demand and then supplying it. And even after the needs are clear, it is difficult to get the administration officers in small communities to initiate any measures which call for any great expense. The best way to get improved sanitary conditions is to have State laws passed which will compel the towns to pass sanitary ordinances which will guard the health of the people in fact as well as in name.

County Hospitals. The county hospital serves two purposes. The first is the treatment of indigent sick and the second is, it provides a place for the treatment of your defective school children. About sixty per cent of the children are in the country and are unable to go to much expense to get their defects corrected. An inspection of school children with no means near at hand to have their defects corrected will avail little. To get physical defects corrected, there must be a hospital in the county where this may be done. In the case of the poorer children, this service should be done gratis at the expense of the county. Most of the existing defects are among children whose parents are unable to have them corrected.

Preventive Measures. The prevention of diseases by vaccination is one of our easiest tasks. It requires little educational work, and the results are easily recognized by the people. It not only cuts down the death rate of the particular disease, but it gives the tax payer some visible returns for his money. In addition, it educates people along health lines. Greatest of all, the campaign last summer proved the great value in carrying out the same thing in the same way throughout this State.

Educational Work. In all the different lines of health work education of the people is the keynote to the whole situation. It is the chief need in health work in North Carolina today. Frequent use should be made of the press to convey information to the people. Health talks should be given not only to the school children, but to the adults. Especial stress should be made to get as much health literature as possible to every county and city official in the State. Every school teacher and school trustee should receive the publications of the State Board of Health.

As regards a standard method of County Health Work in the State, it would be desirable to formulate a definite set of plans to be guided by. This we do not feel competent to do at this time. Means should be provided so that the best methods in use shall become the common property of all the Health Officers of the State. A monthly journal would help do this. All would mutually benefit by this. While we do not feel competent to formulate a definite set of plans for county health work, we do feel that we have pointed out some of the greatest defects and needs as they appear to us. It would seem to us then that the present system could be improved by the following:

1. A monthly journal gotten out by the State Board of Health and contributed to by the Health Officers wherein their problems can be discussed.

2. Relieving the health officer of the emergency work of the county physician.

3. Getting the active coöperation of the organizations, clubs, and officials in the work.

4. Educating the teachers and parents as regards the significance of defects in children as well as the laws of hygiene and sanitation.

5. Educating the public as to the dangers of the contagious diseases, and getting the voluntary activity coöperation of the Physicians in the handling of the same.

6. Getting improved sanitation by the enactment of State laws covering same and by educating the people.

7. Providing a county hospital so the poor may be treated, and the children may have their defects corrected free if they are unable to pay.

8. Finally, education of the people by means of the press, lectures and literature.

Dr. Benj. K. Hayes, Oxford: Mr. President, as this paper and the one which is to follow are quite analogous, would it not be well to hear both papers before the discussions are taken up?

The President: Do you offer that as a suggestion?

Dr. Benj. K. Hays: I will make that motion.

Moved and seconded that both papers be heard and then both discussed at the conclusion.

VANCE COUNTY METHOD OF HANDLING TUBERCULOSIS, AND EDUCATING THE PEOPLE IN DISEASE PREVENTION.

D. C. Absher, M.D., Vance County, Health Officer.

This paper is presented, not for the purpose of airing a new theory, but simply as a history of some things that have actually been done.

Only a few months ago the Vance County Board of Health adopted rules which require: (1) That all cases of tuberculosis shall be reported to the County Health Officer within twenty-four hours; (2) that the health officer shall visit all such cases within three days after the report is received and instruct the patient and family as to how to prevent the spread of disease: and (3) that no room used by such patient shall be occupied after the death, recovery or removal of such patient until after the room has been thoroughly disinfected by being scrubbed with a

1-500 solution of Bichloride of Mercury, and such further means as may be prescribed by the County Health Officer.

In operation, these rules are proving very satisfactory. The doctors are reporting their cases in a satisfactory way, and teachers, social workers, and others report a number of cases that have no attending physician.

When the patients are visited the health officer finds that his efforts are appreciated. Even those who do not know and do not want to know, that they have tuberculosis appreciate our efforts, if we approach them in a tactful manner. The health officer makes no effort to enforce observance of preventive measures. He merely states that he came to see if he could be of service in advising the patient and family as to how to prevent the spread of the disease. This statement is usually kindly received by patient and family; it is then easy to get information as to what methods they have been using. After conversing with the patient and showing him the importance of preventive measures, he is supplied with a dozen sputum cups and instructed how to use them, how to dispose of them, and where to get more. Finally a leaflet giving rules as to "How to keep others from catching the disease," and "How to get well" is placed in the hands of the patient.

The Bureau of Tuberculosis of the State Board of Health is sending literature to all reported cases, but there is every reason for believing that the influence of a personal visit is far more valuable, but of course these personal visits are not possible in counties not having full-time health officers.

Some one will say that this is work that should be done by a visiting nurse. Very true, but what are you going to do if you have no visiting nurse? Some of us are compelled to do work that should be done by a sanitary inspector. One is as much our work as the other, and I, for one, believe that if we must have our hands tied by lack of help or by inefficient help, we should have them tied to the more important work. I think that it is more important to instruct tubercular patients as to the danger of plastering tubercular spit all over the baby's lips and face than to prosecute some city dweller for having such an unsanitary (?) thing as a pile of chips or old papers in his back yard. It is the purpose of health work to reduce the amount of sickness and the number of deaths. Tuberculosis is guilty of causing more sickness and more deaths than any other disease. Let us direct our efforts where they will count for most.

As to disinfection after "death, recovery or removal," that rule is a little more difficult to enforce, because deaths, recoveries and removals are not always reported to the health officer. However, this rule is

proving more and more satisfactory as it becomes better known to the people; and, besides, we must recognize the fact that the *patient* is the chief source of danger.

I might say just here that phases of work like this cannot be tabulated so as to show big results on paper, consequently, they are not taken into consideration by some who make comparative estimates as to the effectiveness of the full-time health officer; but I want to say that even the petty politicians are beginning to see that such work is important.

As to educating the people in disease prevention, several methods are available. The easiest, as well as the most important method is that of working with and through the schools. In Vance, during the present school year, a "school health day" has been held at every white school in the county as well as at several of the colored schools. The patrons of the school were invited to the exercises, and the program consisted of a lecture illustrated with charts by the health officer; often the county superintendent of schools and other citizens made short talks, after which each child was examined for defects and any found were reported to the parents on cards prepared for the purpose. Finally a public health catechism was given to each pupil and a prize offered to the child who learned it best. To the high school pupils a medal was awarded for the best paper on certain public health subjects.

The hearty coöperation of our school forces deserves the highest praise. To the medical profession belongs the credit for founding preventive medicine, but further progress in putting those discoveries into practical use depends largely upon the educational forces.

I said that teaching the children is the most important method of teaching disease prevention, and it is, for the children will rule this country a few years hence; but it is important for our present purpose to reach the adult population, and *how* to reach them is the burning question. We all realize that "it is hard to teach an old dog new tricks," but it must be done. We can reach some of the adult population through the school children, the others will have to be taught by casual conversation, occasional talks at churches and other public gatherings, and through newspaper articles.

A month or two ago we arranged for some meetings in Henderson which have been productive of much good. Dr. McBrayer, of the State Sanatorium, addressed two of these meetings on Sunday at churches. On the following evening a public health conference was held in the graded school auditorium. At this conference our four definite county health problems (Tuberculosis, Malaria, Sewage Disposal, and Control of the Contagious Diseases) were stated, and then discussed from every point

of view by doctors, health officers, lawyers, educators, county and city officials, dentists, newspaper men, and others.

I mention this conference merely to indicate a method of reaching, interesting and teaching the adult population; and I believe that this method could be used to advantage in many other counties.

I believe the present public health problem is largely one of education. Teach the tubercular, and he and his family will protect themselves and others better; teach the children how to live hygienically and we will have a stronger race tomorrow. Some one has said: "If the people knew more they would do more." We might add that *before* they do more they *must* know more. Ours is not a people that can be driven to do things blindly; there must not only be a reason, but the people must *know* that reason before we can expect their intelligent coöperation with our efforts in their behalf.

DISCUSSION.

DR. W. S. RANKIN: Our meeting is honored with the attendance of two of the Virginia health officers and I want to take this opportunity to introduce Dr. Brumfield and Dr. Collinson, who are connected with the health work of Virginia.

DR. SEVIER: We are pleased to have Dr. Brumfield and Dr. Collinson, and we hope they will take part in the discussions. If I call on you I want to have the correct name. If I should not know the correct name do not feel embarrassed if I call on you for it.

DR. W. A. BRUMFIELD, Richmond, Va.: I was too late in getting in to hear all of the papers and I came down here not to talk, but to listen. We of Virginia think that in some respects you people down here are getting decidedly ahead of us and we are going to find out how, if possible, and that is the reason we are down here. I certainly enjoyed those that I did hear all the way through. I fully agree with the idea and the education, but, as I said, what we would most like to know is how you got your people educated far enough to have some whole-time health officers, which we seem not to be able to do in Virginia. I thank you.

THE PRESIDENT: We would indeed be glad to hear from Dr. Collinson.

DR. JOHN COLLINSON, Richmond, Va.: It is a great pleasure to be with you. I have not anything to say except that the papers were very excellent and certainly contained some very good suggestions. (Applause.)

Dr. B. K. Hays, Oxford: Just to get the ball in motion. The doctor is next door neighbor to me in the county work and the methods which he is pursuing are very efficient, bring about very gratifying results. I had the pleasure of attending this public health conference there in Henderson and I was much impressed. I went home and tried to get up one like it. The method consisted in getting a dozen leading members of the laity to write five minute papers on health subjects. I think I went Dr. Absher one better. His spokesmen were all men. I placed on our program alternately a lady's paper and a man's paper, and as the ladies always do things better than the men I think our meeting in Oxford was better, but I want to give him credit for the idea, and I want to say that where it is undertaken it will bring about good results. If we can teach people to think, to get interested in the subject, we will have accomplished our purpose no matter what they think of us personally.

Another method in connection with this was offering a prize to the children for the best essay on the subject, "How Diseases are Spread." We offered $10, divided into four prizes, the leading prize $5, the second $2, and three of $1 each, so that five children got prizes, and to me it was marvelous to see the amount of information that those children had gotten together and put into those papers. Of course, the papers were not original, but the mere fact that they did the reading and knew enough about it to copy and make it their own seems to me to have made it abundantly worth while. I enjoyed these two papers very much, and as I said, I got up to get the discussions started.

Dr. J. E. Malone, Louisburg: Speaking of tuberculosis, in the presence of Dr. McBrayer, "Never speak of war in the presence of Hannibal." All I have gotten on tuberculosis outside of my own experience I have gotten from Dr. McBrayer.

I just want to tell you that last year I took up the matter with my commissioners and asked them to organize a warfare against it in Franklin County, and they agreed to do so. I went to work to see every family in the county. I worked through the paper and asked all the physicians and all the people to report all cases of tuberculosis or suspects, and when I got the name I went to the family in person, and by that means I got every name of every tubercular patient and every suspect, and after making diagnosis of the cases, if I could not get them with Dr. McBrayer at Sanatorium I established a condition of things and environment at their homes, as nearly on the lines of a well ordered sanatorium as you can get in the rural districts, or even towns. Of course, I had to use our literature on tuberculosis, and I used it freely. I put this literature into the hands of the family when giving verbal

instruction, reasonably plain instructions, and then left the literature with them, seeing to it that the families in the neighborhood got this same literature. I have had very good success.

Since last spring I know of several that have been in what I call my country sanatoriums that are well today. I have gotten the name of every patient in my county and I go to see them. I have at present twenty-three, and I not only have the names, but I have when they were taken sick, their first symptom, what their condition was, and look after the family history of these cases.

Now, there are a good many within my knowledge with chronic consumption, no danger of death, nowhere near death or the last stages, people who are able to work, and those, if they don't know they have it, are a great menace to those who come in contact with them. I am very certain to talk with them a long time on the subject, and give them my personal experience with it, leaving this literature on tuberculosis with them, and telling them what a menace they are to those who surround them, their friends, relatives and attendants.

I have the people in my county pretty thoroughly interested. I go back frequently to my office two or three times a day and find some one who says he wants me to come down to his neighborhood and see what can be done. I set Sunday afternoon. At three o'clock Sunday I will be there and talk to the Sunday School about tuberculosis. That means I reach the school children and sometimes I get the grown people. Sometimes they give me thirty minutes, sometimes as much as I want. While I give these instructions on tuberculosis, the danger of it, the effects of it, it seems to waken them up. I leave literature there in that church; people come up and get the literature and take it home.

The trip I made last Friday was, I went to twenty-two homes in a community where tuberculosis had been from time immemorial. I talked to one old lady, explaining that tuberculosis is not necessarily hereditary. She said, "Doctor, you are mistaken; we have had it all our lives." How did you get it? There is a man right there who sleeps with a little child three years old. I asked where the other children slept. "Over there in my bed with me." I said, "Move the bed out of here. Don't let any one except the man sleep in here." He is a man eighty-six years old. A very wealthy man in our county was lying on the bed covered with covering that was fit only to fumigate a room with. I told his wife about it. You think you have consumption and here you have that seven-year-old child sleeping with you. I said, "How many children are there?" "Six. The youngest is seven." Are you going to take him in there where the tubercular man is? Not unless you want it to die with consumption. That old man is one of these men who

won't take anything new. He won't vote for anybody who is against liquor. But before I left him I told him I was going to cure him if he had consumption. I read the literature to him and got the old man pretty badly scared up. One of the grandchildren said, "How much money will it take to keep you here and keep up with that in the way you have started?" I said, "I don't want any money."

I went to my county commissioners and asked them to let me go to work on tuberculosis like I did on pellagra. They were satisfied with my work on pellagra and paid my expenses. They said, "Go ahead." I do not charge anything, just want the county to pay my expenses. I said, "Just keep your money. If you want to make me a present of a box of cigars you can do it. It don't cost you a cent."

I feel more gratified in getting that old man, a man of great influence, on my side than most anything I have done.

I have got six on my list that I feel satisfied are free from all symptoms of tuberculosis, and I put them through the very same treatment, as near as I could in the country, as Dr. McBrayer gives at Sanatorium. I give them a room upstairs, I move all furniture not necessary for comfort, and nobody sleeps in the room but the patient, and use all that precaution with regard to washing things, and everything about coughing, sputum cups, and so on, as near like Dr. McBrayer's sanatorium as I can get. I have had these patients, I believe, that are thoroughly cured, that have come back to life, and I am proud of them, so is the county, and so are they. That is an object lesson. I have gotten my county aroused and it is very gratifiying. I do not charge anything for it. They are interested and they are going to accomplish a great deal of good in Franklin County. Literature is gotten out on the subject which is very full and easy to understand, telling what you are doing, the menace the consumptive is to his neighbor, with instructions as to spitting, ventilation, etc., and those people are mighty hard to get. It is the hardest matter in the world to get one to sleep with the window up. I told them to be put in stuffy, ill-ventilated rooms will kill their loved ones and friends.

In 1886 or 1887 an intelligent man in my county was taken with tuberculosis, also a colored man. The white man was twenty-eight and the colored man thirty. They put the intelligent man in a room surrounded by all the comforts of a well equipped house, brussels carpets, damask curtains, the windows all down, and all the things put about the patient that you want when you want to do everything for him, nauseating, loathsome drugs were given, the windows were kept down all the time, in attendance were physicians and nurses, they did not have trained nurses in those days, one or two stayed in the room all the time, slept

in there. The other man was in a frame house with weather boarding up and down, was illiterate, but he had wholesome country food. The one in the well equipped room died and the other one I saw yesterday. He has made a little fortune farming. He lives out doors on the farm. He is one of the medium wealthy men in our county. That has been since 1887. That shows some of the results from open air. I take these cases around as an object lesson. I had one's photograph taken awhile ago, I haven't it with me, but the man is living and the disease is stopped. The old man is living and is enjoying fairly good health. He could not run up a hill or play baseball, but he has done the work of a farmer and is accumulating a good little fortune.

I just wanted to speak of what Vance and Franklin counties were doing. My neighbor in Vance County and I try to work along the same lines and I think he and I are going to accomplish some good. I get the doctors to report the cases and we are getting the names of all the patients. We go to see them all and I hope we will accomplish some good along these lines. I wish I was able to tell you what I have done but I am broken down now in voice.

Dr. L. B. McBrayer: I want to express my appreciation of both the papers presented and to say that Dr. Absher is doing a most splendid work down in Vance County, and his conference, I believe, was productive of more good than any meeting I have ever attended. I attempted to study the cause of the success of that meeting. Of course, Dr. Absher was the vis-a-tergo, but his ability to enlist all the various interests of the town, and county, the mayor, the commissioners, the preachers, the dentists, the lawyers, was a wonderful aid. He had a representative there on the program from every profession and activity in that county, it seemed to me, and they were intelligently interested. The crowd was not large. It was not a great mass meeting, but it was perhaps better than that. It did have a goodly number of representative people of the town and county and he had their own people, the laymen, to talk on these various subjects. I do not know whether he wrote all the papers for them or not. But, anyway, they were all mighty good, right to the point, and it showed an interest that I have really never seen in a public health meeting before.

Dr. Malone is following the same plan in regard to tuberculosis and I believe it is a most valuable thing. I do not believe we will ever get away from the personal touch no matter what we do, or what we don't do. The other things are of great importance, but I don't think there is anything to equal the personal touch among our people, and in some instances it is absolutely necessary.

I enjoyed Dr. Edgerton's paper very much. The matter of putting on a model health organization for rural communities is a matter of great importance, and it is also a matter, as the doctor suggested, of great difficulty. The State Board of Health has made arrangements with the United States Public Health Service to make an attempt to put on a model health organization in a county in this State; but when they do they will have to copy a great deal of work that has already been done in North Carolina by the health officers today, and, perhaps, the larger part of their knowledge in regard to this administration, the administration of county health problems, will come from the experience of health officers who have done the real thing.

I think this has been a most profitable morning. It certainly has been to me.

Dr. Malone: I do not like to talk too much about what I am doing, though we have to talk a great deal in order to get the people interested in public health matters. Our town gets its supply of water from Tar River and the law requires the owners of this water plant to have this water shed inspected and a quarterly report made in duplicate. One of these reports goes to the mayor of Louisburg and the other goes to the Health Department at Raleigh. Several years ago I learned that the town had no water shed inspector. I brought this matter before the town commissioners and told them that we had gotten several letters from the State Board insisting on the town having this inspection made. They finally appointed a committee of three to select and appoint a good man to do this work. This committee met and selected a competent man and agreed to pay him four dollars and fifty cents per day. The man undertook the job and after getting half over the water shed he gave up his office, saying "That the work was too much for the money." Then the town was without an inspector. After being urged by the Health Department at Raleigh to have this inspection made at once, I went to the committee, of which I was one of the members, and insisted on their meeting to get another man. Failing to get them to meet, I told them that before I would let them (the town commissioners) get in any trouble that I would undertake the work myself and would expect them to see that I was paid a reasonable amount for doing the inspection. The other two members replied that "They didn't see any better way." The water shed extends fifteen miles up Tar River and a goodly distance from the river bed on each side. (You gentlemen know what a water shed inspector's duties are.) He has to go to every house on each side of the river as far up the stream as fifteen miles and at each house he has to inquire all about what kind of disease and sick-

ness they have at present, and also what kind the last year and how they managed the case as to sanitation, disinfection, etc., give verbal instructions, and leave them the necessary literature on health in general, see that their privies, hog pens, horse stables, etc., are not located in such places that the drainage from these could get into the river. Also, to report all dead animals found on the water shed. In my work as inspector I found sixty-nine homes on the water shed, so you see it is a big job. I found that this way of inspection would cost the town rather steep. I tried to think of and devise some way to reduce this expense. I organized a negro health society up the river about half way between the intake and the other end of the fifteen miles. We were very successful in this undertaking, so we now have an organization with nearly a hundred members and they are very enthusiastic and interested, not only in keeping the water shed clean from dead animals, but they keep their own homes and premises clean and sanitary. These homes up there are having sanitary privies and they are doing a good work. When they meet they have papers on different health questions read, they have a large choir with an organ and four other musical instruments, they make good music. They have a vocal band with fifteen members in it and they "make the welkin ring" with this old-time singing. They have four members to read papers on some health question at every monthly meeting, and we give the one who has the best paper a prize. You would be astonished to hear those papers. When we go up to their monthly meetings we take some of our citizens with us, and they enjoy it and the negroes enjoy and appreciate their coming. They say it encourages them. One prominent preacher who went told the negroes at the close of one of the meetings that he wasn't throwing any bouquets at them, but that he just wanted to tell them that while he had been a teacher, speaker and preacher for many years, "that he had learned more right here in one hour than he had in any one hour before in his life." That remark lifted the negroes off their feet. We are going to try to have a public health society in every township in the county similar to this one. While this is a rather unusual way in which to have our water shed inspected it works out well. Just fling the negroes a few suggestions as "Cleanliness is next to Godliness," "You are your brother's keeper," "The best citizen and patriot is the one who does the greatest good to the greatest number of people," "A healthy body for a healthy mind and soul to dwell in," then just turn the negroes loose and you are going to see and hear something. They are ambitious and vie with each other to see who will keep the cleanest home and do the most work in keeping the water shed clean and sanitary. They came down to Louisburg a few nights ago and gave an entertainment in our court-

house and there was an overflow meeting. The white people who attended this meeting said that they were astonished, pleased and highly entertained. While we have made six of these quarterly inspections, not a word of thanks, a cent of money, or a suggestion of appreciation has emanated from the Town Fathers who own the water plant and are the keepers of the citizens' interests in every way.

Dr. M. H. Fletcher: In recent years I have not been connected with health work and perhaps I ought not to speak, but in my earlier days I did do some original health work. It is an inspiration to me. Some of us have gone chasing after the almighty dollar. When I come and hear such reports it makes me proud that I am a doctor, and I am more particularly proud that I am a North Carolina doctor. What is the degree of his success? He has lost his identity, is actuated not by the desire for money, but by his love of the work. If your heart and soul are not in it you are not a success.

I want to speak of Dr. Edgerton. He is giving the people something that they understand. It is plain and just what the people want to hear. People are getting mighty tired of the doctor's technique and their big names.

Dr. G. H. Macon: My county joins Dr. Absher and I know he is doing great work. Although I am not a whole-time officer, I have been trying to pattern after Dr. Absher and I have been giving talks which I think have been very beneficial. I like the idea of Dr. Absher of following these cases up. That is my idea, but where we have not a whole-time health officer it is impossible to do that. If we can have some legislation or some law enacted by which these cases could be followed up I think we would do a great deal in the elimination of the most awful disease we have.

The negro is the most serious drawback that we have to contend with in the control of tuberculosis. The negro is so intimately associated with us, we have them to do our washing, attend our children, do our cooking, etc., and if some provision could be made whereby the negro could get free treatment it would certainly be a great step forward in the control of this dreaded disease. The only way now that a negro can get real scientific treatment for tuberculosis is for him to be sentenced to the penitentiary and there the physicians in charge give scientific treatment. This is deplorable.

Dr. Rankin: I wish to speak of one point brought out in Dr. Edgerton's paper. I appreciate the emphasis that Dr. Egerton places upon established methods for county health work. There is one great disad-

vantage in county health work as practiced at present. I refer to the interference with the plan of public health work, preventive medicine, that comes through the demands upon the whole-time health officer to *practice* medicine. Under present arrangements, the whole time health officer, who should give his entire time to prevention, has his work much interfered with by being called upon to *treat* the sick: (1) The sick in the county jail; (2) the sick in the county home; (3) the sick in the county convict camps, and (4) the indigent sick, or charity cases, distributed throughout the county. The call of the jailer, the keeper of the county home, the supervisor of the convict camp, or the county commissioner on the health officer to attend a certain case of sickness is always an emergency call, and must be responded to immediately. If the health officer has planned his work and has public engagements, which in certain phases of public health work it is necessary to make months beforehand, these emergency calls destroy his plans, break up his public engagements, and in a most serious way interfere with the efficiency of his work. Moreover, these emergency calls by the commissioners on the health officer to see charity cases tend to multiply rapidly once this pernicious practice has started. Now it is the business of the county medical society to step in here and to say to the commissioners that while they, the doctors of the county, are heartily in favor of the whole-time county health officer and health work, that they are opposed to the county taking over the treatment of disease partially or *in toto,* and that the health officer should not be called upon to practice medicine, which is their work, but that the county officials who call upon the health officer to see cases of sickness should be instructed to call upon the nearest physician for this sort of work, with the understanding that the physician, after having the bill O. K.'d by the official calling on him, shall receive payment of his bill from the county.

Dr. J. Howell Way. Waynesville: It is with a great deal of pleasure that I have listened to both papers and the enlivening discussions at this morning session. Our State Health Officers Association is now in its sixth year, and it is becoming a growing factor in developing and bettering our system of public health work.

There have been many things touched upon this morning, and naturally so, because this work is in evolutionary process in North Carolina. There are many propositions that have not been fully developed, we are in a formative state, we are developing. Just how far we are going we none of us can say, but there is one thing we are all a unit on, we are going, going in the direction of helping the people of North Carolina to be better, stronger, healthier citizens physically, mentally and morally.

Now, I want to emphasize the point that Dr. Rankin has made in regard to this organization taking a positive stand in regard to the divorcing of the practice of medicine in the county homes, the county jails, the county convict camps, from the legislative, constructive and preventive work of the whole-time county health officer. It is a necessity. It will come about, Dr. Rankin, in the evolution of affairs in a very short time. The economic disadvantage of having the time and business engagements of the health officers broken into by these petty calls will bring that change in a very short time. It is well for us to discuss it here.

Of course, in a North Carolina county where there is no whole-time health officer, where there is only a county physician, the work that he does as county health officer is only, in a general way, the talks that he makes, the meetings he attends, is, on his part, a labor of love, and I feel sure that you men will draw that distinction.

There is one other feature that has not been commented upon in the paper of Dr. Edgerton. That was this. The growing need of hospitals in North Carolina, not of private hospitals, for if a society or if an individual doctor or a number of doctors wish to invest in a private hospital, that is their business, but I submit to you, gentlemen, that the people of any North Carolina county are able (I said this fourteen years ago to our State Medical Society) the day that the social units have developed to the point where a county is established in North Carolina, and the county builds a jail (and these are getting to be very comfortably ordered places) to house its malefactors, when it builds a palatial courthouse, with lofty corridors and attractive columns, a thing of beauty, when it arranges that splendid house to try these malefactors in, and neglects to erect a county hospital, then that community heedlessly, thoughtlessly, perhaps, is putting a premium on vice, actually rewarding the vicious elements of society, and neglecting a manifest duty in failing to provide for its sick and afflicted, and a future generation will wonder if we were so civilized if we did that.

Now, gentlemen, the medical inspection of the schools, the finding of the large percentage of throat, nasal and other defects brings the matter home to health workers in a practical way. Gentlemen, the time was in North Carolina when some good sugical work was done in the little towns and rural districts under difficulties without hospitals. Excuse me if I tell you I know something of these difficulties from personal experience, but that is past. In the larger towns of the State we find good hospital accommodations, and good hospital accommodations always develop some man on the ground to do good work. In any hospital in North Carolina a call for the man will be heard, and there is not a

county in North Carolina but can develop and will develop some man to do that work.

Now, the tendency is for people to go to the hospital for surgical treatment, but if we are going to have this school inspection—we are having it all over the state—we must interest these counties in making the provision to provide for these children and also their citizens in general. I should like very much to see this association put itself in the record as expressing for the Health Officers' Association their opinion, and their deliberations as citizens of North Carolina, as medical men of North Carolina, that is as equally a prime issue, as a factor in furthering of public health interests of North Carolina and serving the best health interests of the people of the State, that each county that has not already done so shall take steps toward getting these local county hospitals. We can offer this as a suggestion, to be referred to your committee on resolutions, to be presented to this body for its adoption.

Dr. J. C. Braswell, Nash County: I agree with Dr. Edgerton when he states that the attention given to the county home, to the convict camp, the county jail, takes up quite a bit of the time. I want to relate my experience and the difficulties I had in the solution. To begin with, I was called out one morning eighteen miles to relieve a convict. This patient was suffering with toothache. This trip was made on a day when I had scheduled to visit one of my schools, one of the biggest and best I had in that county. The reason the trip was made was because one of the county commissioners called me and asked me to go and see this convict. Of course, it was necessary for me to go. Public sentiment. Coming back I decided something ought to be done with regard to the attention of the convict camp. The following week the county commissioners met, also the board of health. I appeared before the board of health and told them my experience, asking them if they would not turn this over to some local physician. They would not agree to that. We appeared before the county commissioners and asked them to give this to some man in the county. They did this. The only thing now I have to contend with is the county jail and the county home. Fortunately, I reside in the county seat and the jail is near by. The county home is only a distance of about three and a half or four miles.

I notice that we have failed to call attention to one fact. How are we going to get next to the people who are spreading so much tuberculosis? How are we going to deal with the negro? I notice none of us have discussed how we can get in touch with them. I have tried this plan and I think it has worked very well. I collected the names of all the negro preachers in my towns. I wrote a personal letter to them

stating I would be glad to visit their church on Sunday night or morning and make a talk on any health subject they desired. Fortunately, over two-thirds of the letters were answered. So far I have made five visits. I have made five talks in these negro churches, and you would be surprised to see how they come out, the interest they take. Of course, I distribute the literature. Then, too, I offer my services, stating if they are at all suspicious, or if they are afraid they have tuberculosis, I will be glad to make examinations for them on Saturday, as I make Saturday my office day. I think that plan will prove to be very effective. In the future I expect to use the motion pictures in these churches, as I have received over twenty requests recently to use these pictures. Of course, it is necessary to give up Sundays, but if you are vitally interested in your work it will be a great deal of benefit.

Another matter in regard to the medical inspection of schools. This is another plan I happened to hit on which I have had prove some help. That is in regard to the teeth. We find so many children with defective teeth. We talk to them but we have no means of seeing that they get a sample of paste or a tooth brush. I wrote to quite a number of tooth paste houses and was fortunate in getting them to give me a sample of tooth paste for each child in my county. I have personally distributed over 4,000 samples in my county. When I present these in the lower grades I always tell them some fairy tale to get the child interested, and then I give them the little sample of paste if they will buy a tooth brush. I also give them a card saying, you must clean your teeth every morning and every night. Judging from what the local druggists say, it is very good for them because it is increasing the sales, and the dentists state that more children have been to see them in regard to their teeth. I should be glad to give the name of the party who so kindly distributed these samples.

I thank you.

Dr. E. R. Hardin: In discussing the medical examination of schools I notice one point that was not brought out. In my regular routine I take up a great many children that have been examined by the previous health officer and I am convinced that we are doing a world of work that is not accomplishing much present good. Of course, it will amount to something in the future. I find that some of the people have been at work since they know of the various defects of their children. Occasionally, they will send off their child and have it operated on. I do not believe there is over five or eight, in some instances, ten per cent in the State that are having their defects remedied after we find them, and it is a matter of having a great deal of work done to educate the

people along that line. We are getting about twenty-five per cent of our worst defects treated in my county. To my mind the crying need is a county nurse. If we had a nurse to follow up the cases, go into the homes and charge the necessity of having these defects remedied, then I am satisfied we would have 20 per cent more work done. Perhaps in years we will get as large results, but with a county nurse I am quite sure that we could get at least 20 per cent more work done, it would be more effective. Since we have the whole-time men on the job most counties think that they are carrying a big burden now. Some of the jobs are almost hanging by a thread, and in order to convince them of the great need of the county nurses I feel that the State and some other organizations will have to take part and probably contribute to this work. I do not believe that this will be done if they have to bear the entire expense; I am sure they will not do this until they are urged by the State Board of Health and outside organizations.

Another point brought out was the reporting of tuberculosis cases in the county. I do not imagine there are many counties in the State that have not their share of tubercular cases. I know we have our share in Sampson. I do not believe that one-third are known to the State Sanatorium. The remedy is to compel these reports in the same manner that they do those of vital statistics. It will simply have to be done by having a few examples made of a few physicians who neglect to do this. I know there are cases in our county that have never been reported and that I don't believe ever will be until the men are made to report them. The doctors are naturally negligent in that respect. Reports of vital statistics would never have been made unless compelled, unless forced by the State Board of Health. We do not have enough medical men in our State Legislature today. That is one of the things that will have to come about. I am sure if we had more of the proper legislation politics would not play such a big part in our work. I know of a special instance in a county in Georgia. They had a great tuberculosis campaign. They built an excellent sanatorium at the county home. That institution was standing there two or three years ago at the cost of a pile of money to build it, and was a first-class institution of its kind, and did not have a single patient in it and had been standing for two years. Politics tied up the situation and they decided it was too much expense to run the sanatorium after they had built it. They had gone to all that expense to build a modern tuberculosis sanatorium and did not use it. They did not use it the last time I heard from it. That shows the great way that politics has. This institution had never been used. It had been built for the purpose but had never been used. To my mind politics is the same everywhere I go. I am sorry to say we

have some politics in my county. However, I feel that the remedy in this tuberculosis situation is that the doctor be made to report the cases to the health officers and they will then be reported by the health officers to the State Board of Health; and in that way literature will be carried into the families, and in many cases personal visits made by the local health officer.

Dr. Arch Cheatham: I am not a specialist; I am a general practitioner and my health work takes me not only in tuberculosis, but to all phases of the work. I do not think that the health work in the State of North Carolina has reached that stage yet in which we can specialize on any particular feature of the work. I find we have to do general work, taking all phases of the work, giving special preference to none. One feature of the discussion especially struck me—that of health or medical inspection of schools. We have not had it in the country schools, but we have in the city schools. We have done more than that. We have put a nurse in the schools to follow up the inspection and we are now carrying on mental test in the schools. The superintendent of the school said the other day at one of the negro health day rallies, he expected to put on another school nurse. I expect it will be a colored nurse to work in the negro schools. We have two nurses in the health department—one white and one colored. Gentlemen, we are not hampered by city lines. We take in the whole county and we make no discrimination as to race. We try to reach all the people. The work in the city schools is carried on by the school board. The school employed a nurse last year and she did excellent work. If I remember the figures correctly, the superintendent of schools set aside 1,836 pupils in a class to watch their progress, and over 1,800 passed up; 31 failed to make good. Among that number were children who had not been advanced in several years. We hope to realize our expectations in having another school nurse doing welfare work. There are 8 nurses now employed in doing health and welfare work in the county. The board of health has two, city schools one, the Episcopal Church one that works among the deaf and dumb, and she is doing most excellent work, and renders great assistance by her coöperation with the health department. The Pearl Mill Lyceum has a welfare nurse, the West Durham Welfare Club has a nurse, the Metropolitan Life Insurance Company has a nurse, and the Durham Hosiery Mill has a nurse. We get our best results by coöperating with these nurses. I know that it is an idea we will overlap, but we try to cooperate with each other, so as to prevent this. Without a nurse to follow up medical inspection, I do not think it will amount to a great deal, but if you get a nurse and follow up the inspections you will get results.

Dr. Rankin: What percentage of defects get treated?

Dr. Cheatham: Professor Pusey says "about two-thirds of the parents actually consulted the family physician in most cases." The doctors of the town coöperate very cheerfully. Each dentist gives one morning in each week for the treatment of dental troubles, and a nose and throat specialist has given treatment free to children whose parents were not able to pay for it. We have two city hospitals, or I should have said two county and city hospitals—one white and one colored. All children in the city or county who are not able to have defects corrected are admitted to the hospital and the hospital staff do the work.

Dr. Cooper: Would you mind stating about what per cent of children do you find that fail to take the treatment that is recommended?

Dr. Cheatham: I don't know. I haven't those figures. The work is divided, and the school department keeps its own record. I don't remember, but I think Miss Jenkins' figures show—(Dr. McBrayer: about 85 per cent). (Corrected, 45 per cent.)

Dr. Rankin: If that is true, that is the greatest piece of work done in the world. In Philadelphia, the percentage is about 35 per cent.

Dr. B. K. Hays: Pardon me for claiming the attention of the Society for a second. I think we all particularly enjoy reports from men who are putting things across. I believe that all of you gentlemen will say we enjoyed the reports made by Dr. Braswell and Dr. Hardin. They are doing things. We always enjoy reports from Dr. Cheatham and Dr. Malone.

I got up to make a suggestion about the Legislature. Two gentlemen have suggested that we need more men in the Legislature. I think doctors in the Legislature have about as much business there as a hog has got in Heaven. I am making a suggestion that I think might be worthy of your consideration. In your town there is a young lawyer, very bright, full of hope and expectation, and he will appreciate an invitation to ride out in your car, if you have a nice good Ford like I have, and make a health talk. He will go if you ask him. He will get interested in health work. You take him out and you talk to him about what you want him to talk about and he gets to thinking about these things. After you have talked to him all the way and get him to read the literature, on the way back you will ask him why he does not run for the Legislature. He will say, "I never thought about that." You will know it is a lie. Gentlemen, educate your promising young lawyer along health lines and send him to the Legislature, and you will accomplish more in

that direction than if the whole medical profession of North Carolina would run for the Legislature.

Dr. L. B. McBrayer: I don't want to embarrass the chairman, but I think he has done some school inspection work, and I would like to know what per centage of correction of the defects the chairman has had in the last two or three years of his work.

Dr. C. H. O'H. Laughinghouse, presiding.

Dr. D. E. Sevier: In the county of Buncombe I have examined seventy-two schools, and out of that number of schools I have examined 4,344 children, finding about forty-two per cent defective. Up to now we have had only about twelve per cent corrected. I mean that many have been reported. When we go about in the county of Buncombe we have a record, we carry around. The second time we go over these children for the purpose of checking them up. It was pointed out this morning that your school teacher fixes the day for the school children to be there to pick out the defects. My friends, there is about one school teacher in a hundred who can pick out a defective school child. They are not educated along that line. That is my purpose in visiting these schools. In making these calls I also instruct the teachers and show them how to detect a defect in a school child, and that is the only way you can educate them, because they are not educated before the health officer instructs them. When I visit the school, I take each grade. I start with one teacher in her room and I will examine each child for the various defects, the teeth, vision, hearing, adenoids, tonsils. I make a careful examination and at the same time I am examining or looking around for ring worms, scalp diseases, I am watching the child's general appearance, seeing if he is a subnormal child, whether he is well developed mentally and physically, and I watch that child's gait to see whether or not there is a defect in the child's movement. If I find something, I will report these children to the parent, they send them to their family physician, and then I see each physician in the locality in which the school is located, asking the physician to look after the children, and if he is not capable of correcting the defects, pointing out the importance of carrying them to a specialist along that line, who will remove these defects and make him more prominent in his practice. Now, my friends, in visiting the school the second time, we take the book with the record of the first examination, we check it up. At the last examination, in a school in West Asheville, there were thirty found that had never been reported, but the defects had been corrected. There is only one way to handle the health situation in North Carolina,

and that is, as heretofore stated, to establish a full time health officer in each county of the State, and if each county does not establish him, then you should have legislative enactment to place a health officer there not only for school inspection, but other health conditions. Unless you do this, I tell you frankly that the health conditions in North Carolina will remain just as they have in the past.

Dr. D. C. Absher: I think the subject has been pretty well covered. I want to say to Dr. Braswell that in our county we require negroes who have tuberculosis to report as well as white people. We lecture to negro schools as well as to the white.

I want to thank the gentlemen who discussed our papers, and I want to thank Dr. Rankin especially for what he said in regard to divorcing public health work from the practice of medicine.

Along the line of reporting tuberculosis, I want to say just a word. When a case of tuberculosis is reported to us, I do not think it is our business to examine the patient and make the diagnosis. I think that is the business of the practicing physician, and if we are not very careful right there we will get into the practice of medicine. After the diagnosis is made, I do not think it is our business to go to that patient and prescribe for him. We can tell him the dangers of spreading the disease, how it is spread and how he can protect his family and other people, but we should leave the treatment entirely with the practicing physician. I think we ought to be very careful about that.

There was one word used by one of the gentlemen in discussing these papers. That was the word "fumigation." We ought to think about fumigation just a little bit. I wish we had discussed that just a little more than we did. In my opinion fumigation is a thing of the past. (Applause.) Not only is it a thing of the past, but in my opinion it is a dangerous thing. In nine-tenths, perhaps 99-100 of the homes of North Carolina, it cannot be done effectively because the rooms cannot be made air-tight. Soap and water are much cheaper, and far more effective. It is time we were getting away from the word "fumigation" when we are thinking about disinfection. We need to get away from it as well as to get it out of the minds of the laity.

The President: Gentlemen, here is a telegram which I will read to you:

> It will be impossible for me to attend the meeting of the State Health Officers' Association. Hoped to be able to come from New York this morning. Dr. Thames is in New Orleans, and I cannot leave while he is away. Give my best to the other fellows. Hope you will have a fine meeting.
>
> Charles T. Nesbitt, Health Officer.

He is the Vice-President of this Association.

Dr. J. H. Way, Waynesville: As a mark of respect for Dr. Nesbitt, I move that the secretary be instructed to make formal reply to that message. It is a disappointment to me and all of us that Dr. Nesbitt is not here.

Motion seconded by Dr. L. B. McBrayer, and carried.

WHAT THE STATE BOARD OF HEALTH CAN OFFER THE COUNTY PHYSICIAN.

Dr. G. M. Cooper, Raleigh, N. C.

In eighty-nine counties of North Carolina at present the only central health authority is a county physician.

For the eleven counties employing whole-time county health officers this paper at present is not concerned. They are working out their own health problems with more or less abundant satisfaction to their own people.

Some of the big counties, like Wake, Craven, and others, are paying their county physician liberal salaries, which would seem to enable them to carry on considerable health work.

There are at least twenty or thirty counties in North Carolina whose assessed taxable wealth for 1915 was considerably above $15,000,000, yet these counties are mentally too poor, or have been in the past, to contribute more than a few hundred dollars per year for any kind of health work, either actual or so-called. By "so-called" I mean the few hundred dollars in fees which are paid a physician to visit the county home, the convict camp and the jail under the name of health work.

Again, there are at least fifty counties in the State whose assessed taxable wealth ranges from $10,000,000 down to $4,000,000, and whose population figures are anywhere from 4,000 in Clay to 25,000 in counties like Duplin and Lenoir, with about $10,000,000 and up in wealth, and yet who do absolutely nothing for the public health.

To counties like this, the State Board of Health can offer what Dr. Rankin has termed "A Unit System of Health Work," such as a hookworm or typhoid fever immunization campaign of four or five weeks into as many units as the county is willing to undertake.

For example, the counties of Wilson and Northampton have completed two of these units which we have to offer. Beginning with June

21st last, Northampton put on one of our vaccination campaigns. And again in the fall their authorities appropriated money sufficient for a school inspection of all the white children in their public schools. This work was completed the last of February, at a total cost to the county for both campaigns for less than $1,100. The Wilson work was completed the last of March, at a total cost to Wilson County for both campaigns of only $800.

The number of typhoid fever deaths in Northampton County fell from 7 in 1914 to 3 in 1915. The number of deaths from typhoid fever in Wilson County fell from 18 in 1914 to 9 in 1915.

The county of Alamance has completed a medical inspection of school unit, and has voted for a typhoid campaign unit to be conducted in July. They also have in operation a system of quarantine under the direction of the State Board of Health, making really three units of health work for that county, indicating that their people and their authorities have been abundantly satisfied with results of this work so far, both as to cost and quality of work.

Speaking from an experience of six years as a county physician, before beginning whole-time work, I can honestly say that had this plan of work been submitted to my county at that time, that nothing could have pleased me better than to have seen it carried out.

The greatest draw-back to the constructive work of the whole-time county health officer, is the fact that so much of his time is taken up holding autopsies, visiting convicts, inmates of the county home or prisoners in the jail, therefore prohibiting him from executing without handicap any previously advertised and planned systematic work, like school work or the administration of typhoid vaccine. Treating the indigent of a county or visiting convict camps is not public health work. It properly belongs to the activities of the everyday practitioners of medicine.

Our idea in this unit system is to develop it to such an extent that a board of county commissioners acting upon the advice of the county physician, and through their board of health will be willing to set aside a budget for each year's work, enabling them to have as many of these units conducted in their county as they are able to pay for.

As an illustration of what I mean. We go, say, to the county of Lenoir, and propose to their board of county commissioners to appropriate the sum of $2,000 for two years' public health work, including regular duties of the county physician. You can readily see that we would not get much public health work done, but it would get *some* work done, which is more than they are getting now. For the sum of $2,000, the State Board of Health could probably arrange with the county physician

to handle their system of quarantine work for $300 a year, say, making a total of $600 for two years. This would include the reporting, the quarantining, which can be done by registered letter; and the enforcement of the quarantine laws.

As the road commission of a county generally has separate funds for sytem, they would, of course, make their own arrangement for treating the convicts. Even though that had to be done, we could easily arrange with the physician nearest each camp to treat the few sick inmates. In a county near the jail the inmates could be attended by the quarantine officer, whose services could be had at a little extra cost. He could be paid fees at the ordinary rate for his services.

To make a long story short, we could probably have $1,000 left, for which we could easily offer free typhoid immunization to every person in the county who would avail themselves of it. This could be done in one summer. The following winter we could examine every white school child in that county. We could deliver an illustrated lecture on public health at every white school house in the county; we could distribute thousands of pieces of literature directly into the hands of people who could not be reached in any other way.

Thus Lenoir would be doing something for the health of its people, should they choose to do this. Their typhoid fever death rate for next year would probably show a reduction instead of an increase. Lenoir has a board of agriculture and a whole-time farm demonstrator, who is probably costing Lenoir much more than $2,000 in two years' time.

I merely mention Lenoir for the purpose of illustration. The same thing would apply to a great number of other counties which I could mention.

To sum up: At this time with the system of whole-time county health officer proving its worth to counties of reasonable wealth and sufficient population, and with the unit system of health work offered by the State Board of Health, there is absolutely no excuse for any county having a high death rate from preventable diseases, which all do where this work is not being enforced. There is, I say, no excuse for any county in the State not making some effort to lower its death rate and to fulfill its obligations to the people.

Like the parable of the talent: If a man occupying the position of county commissioner, county physician, or member of board of health of a county, has not five talents with plenty of money, he certainly can have one talent and some money to give to those to whom he is responsible.

The most discouraging outlook is the great number of counties who are amply able to do something for the health of their people, and yet

whose authorities lack the nerve to lead, but prefer to keep their ear to the ground and hear what the "peanut politician" out at Podunk wants them to do.

The county board and the county physician who can heedlessly plunge along without making any effort to protect their population from the ravages of epidemic disease are guilty of *particeps criminis* when an epidemic of typhoid fever carries off some of their citizens.

I have heard the argument advanced on so many occasions by even county physicians that their county is spending so much for road building at this time they cannot afford to conduct a sweeping campaign against typhoid fever. To all such, I would point to them as an example, Wilson County.

Wilson County spent $400 in 1915, waging a county-wide campaign against typhoid fever. Its typhoid death rate was cut fifty per cent. In other words, 9 lives were saved from death from typhoid fever. The cost of saving those 9 lives and the 90 other cases of sickness which would have incidentally occurred in that county would build 57 yards of concrete highway, which Guilford County is now building from High Point to Greensboro.

In other words, I have been told by at least 20 county officials in the last six months, not in so many words, but in language which amounts to the same thing, that they valued 57 yards of public highway more than they do 9 lives saved from typhoid fever.

Gentlemen, that is the sentiment among those high in authority, in many counties, and which it is your duty and my duty to combat. As an humble public health worker, I declare to you that I have no prejudice in favor of any kind of health work over any other kind, but for heaven's sake, let us all work together in devising the best method of fighting preventable disease by doing something.

Dr. C. A. Shore, Raleigh: I asked Dr. Cooper to give me a few minutes to show you the result of the use of the new smallpox vaccine which is now being made at the State Laboratory of Hygiene. These boys are inmates of the Methodist Orphanage in Raleigh, and were vaccinated last Tuesday afternoon. As you see the reaction is very mild and illustrates the result of vaccination with pure smallpox virus, uncontaminated with any other bacteria. We vaccinated twenty-five children at the same time, and these two are typical cases. They were not picked by me. In fact I had not seen them until they came to Durham. It is not necessary to scarify a large area, and my own preference is to scrape the skin rather than cut it, because bleeding can be more easily avoided and the blood often washes away the vaccine.

The new method of making it was devised by Dr. Noguchi, who is now working in the Rockefeller Institute. As you know the old way was to secure the vaccine by scraping inoculated areas on the belly of a calf. It was, of course, impossible to get vaccine free from bacteria. B. coli and many other bacteria were always present. Of late years these bacteria were attenuated by storing the vaccine in glycerine, but complete purity of vaccine was never obtained by this method. Noguchi, after a long process, obtained a bacteria free vaccine and found that the smallpox organism, whatever it may be, will grow in the epithelium of the testicle. Either rabbits or bullocks are used, and the pure vaccine is injected into the body of the gland. The whole gland is removed on the fourth or fifth day through the abdomen, the surgical technique being very simple. The tissue is ground up in a mortar with enough glycerine to make an emulsion, and it is then tested for bacterial pollution. If pure, it is further tested for potency, and only those lots used which are potent in a dilution of 1 to 200.

I was particularly anxious for this opportunity, because some of you got some vaccine which was not potent. We were very much surprised because the lot had shown excellent results when tested. After a thorough examination, we finally concluded that it had been killed by freezing. The vaccine should be kept in the cold, as room temperature in summer kills it in a very few days, but it also seems that a freezing temperature will also kill or attenuate it. We had eight or nine lots in the refrigerator at the time, but only two were killed, but all were apparently attenuated. Unfortunately we sent out some of lot No. 6, which was quite dead.

The vaccine is distributed free of charge to all physicians, but we prefer to distribute it through county or city health officers.

Dr. L. B. McBrayer, Sanatorium: While they are all getting their guns trained, I want to say that I am always interested in anything Dr. Cooper says, because he always says something of value and says it well. I have thought a good deal about his simile in regard to the hogs, and I was talking about that once in the presence of Dr. Hill, and his remark was, "You folks need not be blaming us. We have been on the job for some time, and you folks push yours as long as we have ours, and you will be getting things to come to pass as well as we," and I consider it a true statement of the case.

I concur most heartily in what Dr. Cooper says, so far as I am able to know. (Applause.)

Dr. G. H. Macon, Warrenton: We had quite a successful campaign, typhoid campaign, in Warren last year. Dr. Cooper came down. I

don't know whether the time is ripe for a whole-time health officer as yet, but anything Dr. Cooper will suggest, I guarantee we will get in Warren County.

I hope to get an appropriation from our commissioners for the purpose of having all of the school children thoroughly examined. Not being a whole-time health officer, I have to take up one thing at a time.

We have a wide awake, progressive board of county commissioners, and they certainly are coöperating with me along all lines which pertain to health. As I have said before, we have already held a typhoid campaign in the county which pleased practically all of our people, and when the school children are examined and the defects remedied, I will know that I have accomplished some good as county physician for Warren County.

Dr. D. C. Absher, Henderson: Mr. President, I note from the program that the next two papers are on the different units of the work done by the State Board of Health, and it seems to me that all those papers could be discussed at the same time to advantage. I would like to make a motion that we have all three of these papers and discuss them toogether.

Motion seconded and carried.

THE MEDICAL INSPECTION OF SCHOOLS UNIT AS A PUBLIC HEALTH MEASURE.

Superintendent C. L. Coon, Wilson, N. C.

First, I would like to make the point that about two-thirds of the preventable disease problem is educational. When we can get the children and their parents to clean up around their homes, we have found that we can eliminate mosquitoes and chills. But first of all, we have to convince the children and their parents that mosquitoes are the only cause of chills.

There are still many people in my county who do not believe in the germ theory of disease and who do not believe that there is such a thing as mosquitoes giving people chills and fever. The attitude of such people is expressed by the Wilson man, who recently told me that he did not believe in any such d—n foolishness.

For years we have taught hygiene and sanitation in the public schools. But we have not succeeded very well in getting our precepts practiced.

When we began to discuss this unit of health work, many people doubted the wisdom of the whole plan. But we made health day a picnic occasion. This plan secured the attendance of the people to hear the medical inspector talk, and the children recite the health catechism and read their compositions on health subjects. Even the most chronic doubters became enthusiastic over the work, and some of them even wrote articles for the local paper praising the health day exercises.

For three years we have been telling many of the parents about the defects of their children, and urging them to have the defects remedied. But we teachers do not speak with authority, and we often overlook many physical defects because we are not experts. But when a skilled physician, working under the highest health authority in North Carolina, tells parents of the defects of their children, they will generally listen to him. The result has been that indifferent parents in all parts of the county are saying they mean to have their children treated as soon as the schools close for the vacation. I recall especially, one case of adenoids which we have tried to have treated for five years, which has already been treated as a result of this health campaign. And there are many other similar cases. This medical inspection unit of health work has been a great success in Wilson County. It has aroused indifferent parents and teachers, it has convinced many people that there are such things as germs, and it has convinced many people that they ought to make their homes and premises and schools more sanitary. But above all, it has resulted in the medical treatment of many children of indifferent parents. The man who invented this medical inspection of schools plan deserves the thanks of the State.

DISCUSSION.

THE PRESIDENT: These are mighty pretty subjects to discuss. I see our old friend Dr. Thompson. I know he wants to say something. We would be glad to hear from Dr. Thompson.

DR. THOMPSON, Jacksonville: If it was not that I like you personally, I would resent the manner of your reference to me, calling me old. I do not like to be told about it by red-headed people, because I come out of red-headed stock. My father had nine children, four of them were red-headed, and it is just like one's own people talking about one when you call me old.

I really did not want to get into the discussion, but I don't mind availing myself of this opportunity, Mr. President, to say that I always appreciate what an intelligent school teacher has to say to the public. If there is a problem, a sociological problem, that confronts us, that

problem lies not so much in the domain of medicine as it does in the domain of education, in the field of the school teacher.

If there is one weakness in the system of public education, and I presume that it is reasonably true as to the systems of all other States, that weakness consists in this fact, that a child is considered a child, it matters not in what condition that child may be; and those of us that pretend to any degree of knowledge, to any acquisition of wisdom, know that children differ immensely the one from the other and that failure of our efforts to educate lies in these differences and the failure of the teacher to comprehend these differences in children. It cannot result otherwise than in waste and failure. Every graded school in North Carolina is measurably a success if manned by intelligent men and women who will grade the children, not simply according to their knowledge in books or their years in age, but according to the mental development and character of the children. In other words, every system of education that does not take cognizance of individual qualities and defects is a failure; and in that fact lies the wisdom of the old English policy of having a tutor, one man who could understand the mental status of every individual in the household, and adapt himself to these diverse needs.

Then we know that the backwardness of many children anywhere in the county of Durham, or any county in the world, is largely due to physical defects that may be remedied. As has been said, some man says, "What sort of damn foolishness is this?" Everything that a man is not used to is foolishness and almost everything that he is used to is pretty good with him. A man used to go to mill with his wallet across his horse, his corn in one end and a rock in the other end to balance. If he had not balanced it, it would have slipped off. Everything that is gained is gained out of foolishness, by a process of education; and the people are willing to be taught. But it takes a vast deal of patience to teach them, for when a man starts out to teach, he finds that the Lord God Almighty made a beautiful world, but when he folksed it he did something. I do not mean any imputation against any one at all. I would not say anything I would not include myself in; but somehow or other, when we go about in the world we run up against fools, and sometimes we are fools ourselves. Pupils and teachers are beset by limitations. I do not say that it is hopeless to go out and teach. On the contrary, on every hand there are manifestations of growth and progress. But teaching calls for wisdom, persistence, and patience. When you go showing the folks "line upon line, precept upon precept, here a little and there a little," the things that make for their good, eventually you will lead the people out of the ruts and they will come and thank you

for the work that you have done for them. Those who stood ready to crucify you for your "foolishness" will come at last to build monuments to the pioneers.

Dr. L. B. McBrayer, Sanatorium: I don't like to talk on every subject that comes up, and especially it is difficult to talk just after Dr. Thompson has talked, but I didn't know but that the other gentlemen felt the same way I did about it and I thought if I would "step down the current," so to speak, the balance would come on. So I will take that position of a transformer and get the current down from the high plane on which our good friend Dr. Thompson soared and perhaps the balance will enter into the discussions of this important subject.

I do feel that this is one of the most important health problems that confront us. It gives more hope of accomplishment than any other one line of public health work. For those reasons I know that every man here is doing more or less of this work, and I know some of these health officers are doing some mighty good work. I am looking right straight at Dr. Jones. I think this matter ought to be discussed.

I want to express my appreciation personally, and I know the appreciation of every member of the Health Officers Association, for Prof. Coon's presence here today, and for the words of encouragement that he has brought us. If we had such a county superintendent of schools in every county in North Carolina as Professor Coon, the way of the health officers would be strewn with roses instead of thorns. (Applause.) Of course, that does not make so much difference. The health officer is accustomed to thorns, but it does make a difference in results.

We were discussing this morning and guessing one way or another, on the amount of correction of these defects that were obtained, by the various methods of work, with a nurse and without a nurse, and with the State Board of Health, and all those kind of things. Professor Coon can tell us next year. No doubt he will have gotten 80 per cent of his defects corrected. I have not the least doubt that he will. I hope you will come back next year and tell us about it, and if the other county superintendents will enter in with the same spirit, and I feel constrained to use another word, intelligence, the same results could be maintained in every other county. I want Prof. Coon to know that his remarks here today have been an encouragement to the health officers of this State, and to the health workers of this State. I agree most fully with every word he said in regard to the influence of these health units, especially school inspections, and I hope the day will come, and is not far distant, when we will have in one way or another, either by the whole-time health officer, or by the unit of the State Board of Health, if the other cannot be obtained, a school inspection in every county and city of North

Carolina. It is rather a funny thing to me that our financiers, the men in our counties who are guardians of the purse strings, are so short sighted, and yet, as Dr. Hill said, it may be our fault. They can see very easily the advantage of a farm demonstrator, it seems a mighty easy thing to show them that advantage, and they can see the financial gain in the prevention of hog cholera, and what a terrible crime it is to have hog cholera for a week and not report it. A great many of them do not seem to have reached the point where they can get the intellectual conception that the death of a child, or the death of nine people from typhoid is worse than the death of nine hogs from hog cholera. As I say, it may be our fault. I asked Dr. Cheatham to find out what per centage of correction of defects found in Durham school children had been corrected, he has had a follow-up nurse one year. He has the information, and he finds forty per cent of the defects found this year have been corrected, and they have six weeks yet to go on. In a private talk with Dr. Rankin after the meeting, he stated they had all kinds of facilities in New York, and they could not get but thirty per cent there. I said, "They have all kinds of people." I said in Durham they have a better class of people to deal with and they ought to get better results.

Again I want to thank Prof. Coon for his encouraging address.

Dr. D. C. Absher, Henderson: I feel somewhat out of place following two such distinguished speakers, but I want to say just a few words about Dr. Cooper's paper. I think some of the whole-time health officers are a little bit scared about this unit system. Some of us feel that it discourages our counties in employing whole-time health officers, and in thinking the thing over for the past few minutes, two or three things have occurred to my mind. The first is that the unit system takes public health work out of politics, and to my mind, that is one of the best things that can be said of it. Another good thing is that in every county where one of these units has been given to the county, the county is encouraged rather than discouraged to employ a whole-time health officer. Dr. Macon said his county had had one of these units, and he told Dr. Cooper that if he would come down there, his county commissioners would put on a whole-time officer. I think most of the health officers who are whole-time men do the unit work. In my county last year I did the typhoid vaccination unit in addition to the school inspection unit along with the other work that we all were talking about this morning. Every white child in Vance County was inspected during the present school year. In doing this school unit, however, we are liable to overlook the fact that we ought to do more things than merely examine the pupils. The school buildings should be examined, and the school grounds should be examined. In my county, I cannot tell you just

now how many school houses I found lighted just as this room is lighted here, the children facing the light. I do not know how many children had their vision impaired on account of that fact, and I won't make any accusation as to who was guilty, and hope that nothing of that sort is in existence in Wilson County. Then we should look at the grounds. I don't know how it is in Wilson County, but in Vance County, when I went there, about ten per cent of the school houses had old open surface closets. All the rest of the schools had no privies at all. Today practically all the white schools, as well as the colored, have an improved type of privy. Some have buckets, some are pit privies, but we have made improvements.

Prof. Coon: Would you mind if I make a suggestion? Dr. Absher said he did not know whether there were any schools in my county with the children facing the light. You have those schools everywhere in this State, and there is no way to stop them. It is the only houses they have. If I had the power to condemn them, we could get at the bottom, but you have got to condemn them before you get a change. You cannot get the community to do it. I have tried to put that in the law for fifteen years. Nobody pesters about it. You don't need to ask me if there are any in Wilson County. Yes, there are. They are there because you and other school teachers have let them be there. We ought to have somebody charged with the duty of examining these school houses. We have got it for the county court house, for the jail. When it is run down, the judge reports it to the grand jury. $50,000 was voted the other day because the old court house was dirty and rotten. Why can't they make the same provisions for the school house?

Dr. Absher: I think, under the present State laws, a county health officer has power to condemn a school house when it is not sanitary in every respect. I would like to suggest to Prof. Coon that his county needs a whole-time health officer.

Dr. W. M. Jones, Greensboro: The school house question is one that has given me a good deal of thought, and a few days ago I said to our county superintendent of schools, Prof. T. R. Foust, "Who in the world put up this school house?" He said, "Why?" I said, "I would like to know." He said "This school house was put up by the plans of the State Board of Education." It would take a snake to go up the steps. There are forty steps and five turns. I counted them. Going to the upstairs rooms there are five turns and just forty steps, making direct right angle turns, and that is just an idea of the way these school buildings are put up. It is a sort of spiral stair-case only not as easy.

PROF. COON: At McLeansville, the house was not built by plans of the State Board of Education. They told him they were built by the State plans, but they were not.

DR. JONES: I certainly did not think that the State had gotten so far off as to employ an architect who knew so little.

PROF. COON: If you will get the plans, you will find that that house is not built that way.

DR. JONES: There are other two-story buildings with no fire escapes in any way. They use those rooms, where there are four rooms, they put the children upstairs in the winter time because it is easier to heat. Of course, there is danger of a fire. Apparently most of our school houses are well located as far as grounds, etc., but we are in the same proposition as to the toilets. We are a little better off than we were some time ago, but I am waiting with little hopes of getting some perfectly satisfactory plan of disposal. There are some places in the county where the pit privy was a success. In other places we had to do away with it. Another large school in the county, one of the largest schools, I went to the school committee, talked over the proposition of putting in a tank, and having sewerage and water system. We have a tank that gives us water for fire protection. The committee said if we did that, we have got a suit. If you put in town here a septic tank the people in this community are going to sue, so we are just going to use an open privy at the school house, and at the dormitories. I believe this is one of the reasons that we have not this water system there. We tried and do as well as we can with getting some sort of privy, whether it is a privy or some local place.

On looking up the plans of the State Board of Education, I find that the McLeansville school house above referred to, is built on and in accordance to plans No. 5, of those issued 1911.

DR. MALONE: It is the little things that count around our school house. I have noticed one evil factor which is often overlooked. I was standing at the public school the other day and I noticed where they got their drinking water was a well with two buckets with a rope. One bucket went down and one went up. A little negro boy came along with a little sick hound puppy in his arms, he put his puppy down, and with his hands let the bucket down, washing his hands on the rope, and the rope went down in the well. The people had to drink the water. I called the attention of the school teacher, who had never thought of it. All through the county you will see wells like that. There are ropes, cotton ropes, and any one passing, no matter what disease he is afflicted

with, if he wants to get a drink of water, he washes his hands on that rope, and it goes into the well and pollutes the water. I went to a school where there were 200 young ladies using the town water, yet they had a well which they were very proud of. I called attention to the rope to the president of the college, and she immediately saw the danger. I simply call attention because I think it is a source of danger, and might be corrected.

Dr. J. R. McCracken: I was especially impressed with Dr. Cooper's idea of the unit system. We who are not employed for our whole time are greatly handicapped for lack of funds in executing this public health work in the way in which we would like. If we cannot get our commissioners to agree to give us the financial aid for all these things, we can do something each year, and I have been working with this idea for the last three or four years. Three years ago we had the hookworm campaign, and practically every child was examined, and those infected were cured. Two years ago my idea was to have medical inspection of schools. I thought I was going to be successful with the county superintendent on my side strongly supporting it. We had a speech made before the county commissioners and the Board of Education, and the Board of Education agreed to furnish one-half of the expenses of the enterprise, and the commissioners expressed themselves as being in favor of making the provision, but when the two bodies met separately, one man raised objection, and that threw a damper on the whole thing. Last year we had the typhoid vaccine campaign, and while it was not pushed in some parts of the county, but something over 2,000 children were vaccinated in Haywood County, and it is my purpose to continue this campaign this year. I wish I could have Dr. Cooper present to hypnotize my board of commissioners. I wish to have the sanitary privies established in every county school.

Dr. E. F. Strickland: Fortunate is the county that has a superintendent of education, who is thoroughly imbued with the importance of health work in the public schools of his county, who will take the matter to heart and will thoroughly coöperate with the health officer of his county, be he a whole-timer or a partial-timer.

The medical inspector of schools and examiner of school children realizes his inability to get the recommendations he makes carried out without the sanction and coöperation of the superintendent and teachers of the schools under his charge. Likewise the educational department recognizes its inefficiency without first obtaining the recommendations of the medical examiner, so the work is interwoven and interlocked. Prof. Coon is getting things done in his county because he is imbued

with the right spirit, and because he is thoroughly alive to the coöperative plan of public health service for the accomplishment of best results.

With direct reference to Dr. Cooper's paper, I should like to speak by analogy. I believe that the question will not be asked of those who are so fortunate as to get to Heaven (and I hope many doctors may be among that number), by what special route they came, denominational or otherwise, but that they are there will be all sufficient and wholly satisfying. Under what name and by what route educational health work is done in North Carolina does not make so much difference. Shakespeare has said there is nothing in a name, but coöperation in health work is the watchword of all those sincerely concerned health officers, doctors, teachers, preachers, everybody.

I endorse all that Dr. Cooper has said, and thank him for his paper.

One plan or method may be best suited to one county or community, and another to other counties or communities.

In public health work, varied conditions confront us even in the same county, in the different sections, and even in adjoining sections. I go to one school and I get the coöperation of the teacher. She meets you with the glad hand and a hearty welcome into the school life, and makes the way easy for you to mold the minds of that school. She will advise vaccination, and you vaccinate every child in that school, as I have, against smallpox. In a school a few miles distant, you meet with less encouragement. The sentiment of the community is different, the quality of instruction in the school is different, and consequently, the school life is different. By tactful care you may win the confidence of this school and see wonderful improvement and be able to do much good on your return visit a year hence.

Again, you go into another section and appeal to the school to know how many present have been vaccinated against typhoid fever. Hands up, teachers included, and you find that one-fourth, one-third, and, in one instance which I recall, one-half of the school was immune against typhoid fever from having taken the treatment.

In another section it is the opposite to the encouraging condition just related. You go to a negro school and you make a health talk to that school. You see the eager, anxious, straining eye and ear of the individual pupil of that school, these children hungering for information and instruction, and these people will take the lesson that you give them, and they will live it out in their homes, and that local negro school committee will get the advice you offer from the teacher and from the children, and they will go over and see the Superintendent of Education for their county. They will then set to work, and they will put

fly proof closets on the school grounds, such improvements for water supply that you have recommended, etc. It is a credit to the race, and sets an example to many of the white schools; yes, to some of the State and county high schools.

We are lifting them up and they are helping mightily in lifting themselves up. I want to say, in passing, that if North Carolina should take the pains to build school houses for all the people in keeping with the modern idea of sanitation, comfort and expense as the present day court house and jail exemplify, and should employ wise counselors as she does judges and solicitors, and put them to work actively in the eradication of ignorance, delinquency and the prevention of crime, what an improvement it would make in the condition of the citizenship and in the affairs of North Carolina.

The supreme effort should be made at the foundation of the ladder of society. Of all the work that I have ever done in my life, I feel the possibilities for usefulness the greatest when I face an audience of intelligent, bright and interesting children in a school room. That "you cannot teach old dogs new tricks" has been said already today from this floor, but it is worth repeating over and over again to emphasize the importance of early training. The training that the child gets in school is not only ultimately but frequently immediately put into execution in the home. I was recently addressing a "Farm Life" high school in my county, in which I made the statement to the school that the intelligent thing to do was to vaccinate for smallpox. I made a statement as to what Germany had done along this line. I like to refer to Germany and quote her reliable statistics. The Germans are the most wonderfully developed people in the world, which they have already demonstrated in civic life and are now demonstrating in the most disastrous and unparalled military strife.

Well, I stated to this school that Germany passed a compulsory vaccination law years ago, requiring every child born in the Empire to be vaccinated within the first twelve months of its life and to be revaccinated within the first twelve years of its life, and that Germany had been absolutely free from smallpox since this law was put into full force and effect. I said, however, that there was not a case of smallpox in Forsyth County, at that time, but the only way to support that good record was to get vaccinated. More than a dozen of these children came up and I vaccinated them. One bright, interesting little girl, about eleven years of age, came along with the others and asked me to vaccinate her. Her sister of about sixteen, representing one of the higher grades, came rushing forward and said, "No, doctor, mother said if you came over here to say to you that she did not want little

sister vaccinated." I said it was not compulsory and I must yield to the mother's request, but to talk it over at home and bring the little girl over to my office to see me later. She was one of my converts, as bright and promising a child as you find in any school. She actually cried and wept because she was not allowed to be vaccinated there before that school audience.

She went back home and I have not seen her since. What a rebuke to her mother if that beautiful life should be lost, or her face scarred by smallpox.

I think all the public health work we do, that our efforts directed to the plastic mind of the child, by precept and by example, is perhaps worth more than any other service we can render.

I thank you very much.

Dr. Cooper: I think that to begin at the bottom that Dr. Strickland got the right idea that when we get health work done it does not matter how we do it, just so we get the health work done. That is the whole sense of it. He mentioned Germany a minute ago, and that reminds me I read yesterday in reports that the German empire has a population of 68,000,000; that out of this population their annual death rate is just 700,000 people less than it was in 1886, thirty years ago. That explains a great many things to us. It is one of the most interesting things that I have read coming out of the war.

In regard to Professor Coon, I am delighted to hear the testimony that he bears concerning our health work today. I invited Professor Coon here, Dr. Rankin, Dr. Sevier, and myself as a committee. We had no idea what Professor Coon would say, but we knew and we knew that everybody else here would know that Rockefeller has not money enough to buy an expression from Professor Coon. I am delighted to hear about the work we did over there. It goes to show that something is being done and I don't want you all to get away from the fact that the point we are making is to lower the death rate in North Carolina and to get the counties that are doing nothing lined up to doing something.

I went by special invitation 100 miles last fall to meet with a committee, the board of aldermen of the city, it boasts of being a city, and a representative from the school board and the county physician. When I got in town that night I asked where is Dr. so and so. A fellow says he sent his regrets but he had a date to go 'possum hunting and he forgot. I could go further. Professor Coon brought out a point when he said that these fellows in Wilson County told him that this mosquito business was darn foolishness. I went to consult the chairman of board of county commissioners in eastern Carolina by urgent request of the biggest tax-

payer in that county about a unit system. That county has about 12,000 or 15,000 people. The chairman of the board was sitting out in front of his store when we called, a beautiful day in autumn, about 300 people in the town. One-third of them in bed with chills that day. He says, "Look a here. What are you going to teach in regard to malaria? Are you going to teach them that malaria is carried by the bite of a certain kind of mosquito?" I said, "We most assuredly are. If you will go to the river I will show you some of them now." He said, "If anybody has no better sense than to come down here with any such foolishness as that they will get no money out of us." One gentleman who gave half of the expenses for the trip said, "You will have to go back home." The commissioner said, "Any fool knows that when the scum rises on the river everybody goes to having chills."

I don't want to be mistaken about farm demonstration or any agricultural work. I will show that I practice what I preach. In my home county I worked to get a whole-time county superintendent of schools, then we got the people in favor of farm demonstrators, two farm demonstrators we got. We worked then to get a rural supervisor of schools. Then I thought something should be done for health, so we got a whole-time health officer. Of course, we believe in saving the hogs, but we want to build up the child life of North Carolina, and to do our part, the board of health's part, we want to build up a physical growth. And seventy-five per cent of this work of the whole-time health officers is educational, and the day is to come when the records of these officials are going to stand high on account of the fact that they were doing pioneer educational work.

Just one other thing and I am done. I want to say a word about Dr. Absher's work. He offered a gold medal for the best composition. He got 250 compositions written by 250 children on health subjects. He reduced these to fourteen, and he brought these fourteen to our office and we finally selected one of the most original essays I have ever read, from a fourteen year old child. His verse of poetry at the end would have done credit to Dr. Hays:

"Hit the germ hard, boys,
Hit him on the head,
Hit him mighty hard, boys,
Before your folks are dead."

In Alamance County we have on file over a hundred compositions written by boys and girls. I recall one especially, written by a twelve-year-old girl, who wrote a composition on diphtheria which she had had three years before. It was a classic.

I wish you county physicians would carry these things home and talk about them and talk about the things that you can get done, and let's get on as many units of public health work as we can. I will assure the whole-time health officer they need have no fear, the field is big enough for us all to work in and we will certainly get some work done.

Dr. Shore: I have not anything more to say except that I might just remind you all that the smallpox vaccine that I speak of is for free distribution to the doctors of the State. We prefer to send it out through the health officers, but we do not refuse any doctor. We do prefer to send it out through the health officer and county physician.

It makes the laboratory man feel that he is doing only a small part of the work when he hears from the men on the firing line, but we try to supply the ammunition of warfare the best we can.

THE IMPORTANCE OF THE WHOLE-TIME HEALTH OFFICER AND THE WHOLE-TIME HEALTH NURSE IN THE CAMPAIGN AGAINST TUBERCULOSIS AND ALL PREVENTABLE DISEASES.

L. B. McBrayer, M.D., Sanatorium, N. C.

In the war with Spain the most important character on the side of the United States was not Admiral Sampson, who received official credit for the naval victory off the coast of Cuba, although he was on land forty miles away at the time of the engagement; nor was it Admiral Schley, who was in command of our fleet at the time and who was responsible for our success; nor was it the redoubtable colonel who made the charge up San Juan Hill, whose grin was sufficient to drive before him the army of Spain in fright and dismay; nor was it the silver-tongued and sweet-lipped Hobson, who attempted to bottle up the Spanish fleet by sinking a collier in the mouth of the harbor; nor was it our own beloved Ensign Bagley, who cut the cable at Cardenas and was the first to give up his life in the punitive expedition sent out to avenge the death of our sailors who went down on the ill-fated *Maine* in Havana harbor, and which in due course of time gave freedom to Cuba; but the most important character in that war was the man who carried the message to Garcia. In public health work this man is the health officer, and his first aide and chief of staff is the health nurse.

The units of health work now being offered by the State Board of Health are splendid. These are but a sample of the many new and important methods and policies evolved from the fertile brain of our distinguished chief, the Secretary of the State Board of Health, Dr. Rankin. They can be used to great advantage in counties who have no whole-time health officer, and, in addition to the concrete good they do, will serve to show the county the advantages of public health work and bring the people up to that degree of intelligence in regard to health matters that will pave the way for a whole-time health officer and follow soon thereafter with a whole-time health nurse.

Then, again, these health units may work out plans for doing certain specific things, such as school inspection, etc., that will serve as an example to the health officer, and no doubt the board of health will cooperate with the health officer in putting on these units, just as they do with the force they send out directly from their office.

These units of health work have many other things to commend them, but one thing is certain, and that is that they can never take the place of the health officer. The unit of our government is the county, and no county administration is doing its duty to its constituents unless it provides them with a whole-time health officer and strengthens his hands and multiplies manifold his efficiency by giving him from one to a dozen whole-time health nurses.

You are aware of the fact, of course, that North Carolina was the pioneer in the whole-time health officer business, just as she was in the health unit mentioned above and in the medical practice act, and in many other good things. We were unable to procure men of experience for these positions because there were no men in this or any other State who had had this experience. It became, and now is, the more necessary that the whole-time health officer in North Carolina make good, and by making good I mean working out a program for county health work that will be a model for other counties and other States, and will commend itself to the profession and to the people.

When this work was taken up there were no schools for health officers. Three or four have been established since, but, likely, there is not a professor in any of them that ever had any experience as a health officer, and, besides, these schools, excellent as they are, can only give you some of the implements a health officer will need to use; but the only way a health officer can become expert in the applied science is (a) to see the actual work done, and (b) to do it himself. Don't be discouraged; Terry and Reynolds and Evans and Levy and Rankin and Leathers, and the others that are doing such splendid work as city or State health officers, have worked out their own salvation, and who for a moment would inti-

mate that any of these are not, even now, on the pinnacle of success and lifting themselves higher every day, as it were, by their own boot-straps? But in order to be a success they have made use of the experience of others; they have never lost an opportunity to see the work of others and if opportunities did not come, they made them, and they have used their own initiative and have also been free to give the other fellow the benefit of their accomplishments.

The responsibility of tuberculosis weighs heavily on the health officer. The early diagnosis of this disease is perhaps one of the most, if not the most, important thing needed at this time, and it is perhaps the most neglected thing in the campaign against tuberculosis. Our State, along with the other Southern States, can not very well arrange for clinics, as is done in the larger cities. If this work is done it will have to be done by the health officer.

Come to think of it, why shouldn't he be asked by a physician who is in doubt to make a diagnosis for him in a suspected case of tuberculosis? Or if a person suspects that he has tuberculosis, why shouldn't he have the right to an examination by the health officer? Or if some one suspects that his neighbor has tuberculosis and fears that the said neighbor will infect his family, why wouldn't it be proper for him to request the health officer to investigate and take such step as might be considered necessary to protect the community? That is just what he does in a case of diphtheria, scarlet fever, smallpox, or other contagious or infectious disease, and tuberculosis causes more deaths than all the other preventable diseases combined, and ten to twenty times as much sickness, distress and expense.

Some health officers might say that they do not feel competent to make an early diagnosis in tuberculosis. Then let them make themselves competent. There was a time in the life of each one assembled here when we were not competent to make a diagnosis of any disease, but we did not continue so.

In health work I do not know of anything that can be so helpful as a nurse. It is all right and proper and wise and necessary to give printed instructions, but as I had a doctor write me, what good will it do when no one in the family or within three miles of the family can read a word? It is all right and wise and proper for the attending physician to give instructions in the prevention of disease, but he is not paid to do this and cannot take the necessary time, in most instances. But let the nurse go to the home and spend an hour or more, and while there not only give instructions, but carry out the instructions with her own hands, and also administer to the comfort and needs of the patient by carrying out such orders and treatment as the doctor may prescribe, in such way

giving physical comfort to the sick and winning her way to the heart of the family and all the time teaching hygiene by precept and example. This has long been recognized in the larger cities of the North and West, but is only recently coming into notice in rural communities.

We now have 25 public health nurses at work in North Carolina, and we hope to extend the number as rapidly as possible. By public health nurse we mean, in North Carolina, visiting nurse, tuberculosis nurse, prenatal nurse, child welfare nurse, school nurse, etc., etc., etc., all combined in one, under the title Public Health Nurse. It might be well for me to say at this point that we never could see the propriety or economy in having from two to five different nurses visit the same family on the same day, representing the various agencies mentioned above, and that this plan always seemed to us to be a waste of money, and what is more valuable, the time and energies of the nurses and the family. When we took this matter up with various authorities interested in this work, my first statement was that we could not stand for such division of the work in this State, and that the one nurse, under the title of Public Health Nurse, must cover every phase of nursing service, and that when more nurses were needed in a given community, they would be added on the same basis and only one nurse would cover a given territory. I was greatly pleased to have a hearty assent to this policy, and to learn that several of our northern and western cities were, even now, changing to this policy as rapidly as they could.

We hope soon to place in the field a nurse who shall work under the title of Director of Public Health Nursing in North Carolina. It will be her duty to supervise the nurses doing this work throughout the State, and help create sentiment for and procure the establishment of nursing service in communities that do not have it.

The financing of public health nursing in North Carolina comprises a comprehensive scheme of coöperation not heretofore correlated in health work. The Bureau of Tuberculosis of the State Board of Health and the Metropolitan Life Insurance Company will jointly finance the salary and traveling expenses of the director of public health nursing. The local nursing service will be financed locally, except for the Metropolitan Life Insurance Company, and will combine all interested agencies. For example, in Fayetteville, where they have recently put on a nursing service, the following organizations will coöperate in financing the scheme: Local Red Cross Seal Committee, the town, the county, various churches and secret orders, and the Metropolitan Life Insurance Company. The Metropolitan Life Insurance Company does not contribute a flat amount, but pays to the committee or whoever is responsible for the nurse's salary, 50 cents per visit, made to its policy holders.

The cotton mills and other textile mills are employing nurses for their mill communities, and these corporations are so well pleased with results that we have reason to believe many more will take up this splendid work at an early day.

Let it be said, however, that this is a legitimate field of public health work and should be financed by taxation just as is the health officer today, and we should lose no opportunity to impress this upon the minds and hearts of our citizenship.

DISCUSSION.

Dr. Benj. K. Hays: I would like to introduce to this Society one who, I think, would have something to say, but who is rather young and modest, Dr. Thompson.

Dr. Thompson: I cannot discuss the paper wisely because I did not get in in time to hear it all. I think you have my name on the program. I would like a little further talk to be had. Let me come on in due order if I am to come at all. Really, I ought not to discuss the paper. I take great pleasure in introducing my venerable friend from Oxford, Dr. Benj. K. Hays.

Dr. Hays: I am not going to talk tonight. I did not get in in time.

Dr. Laughinghouse: So far as this paper of Dr. McBrayer's is concerned, it does not seem to me that it needs discussion. The thing to do is to adopt the suggestions embodied therein without debate and proceed to find a way to finance these suggestions so as to put them into practical operation and useful service right away.

I have spent a large portion of the day listening to the various papers and discussions of this organization, and I have never enjoyed a day more, and have never felt safer than I do right now with regard to the progress and practical usefulness of public health work in North Carolina. When I hear men like Dr. Edgerton and Dr. Absher, not a whit more enthusiastic than Dr. Malone, men facing life's sunrise and men looking at life's sun as its shadows are lengthening toward the west, express an enthusiasm which makes one feel and know that altruism is pushing them to the working out of practical plans by which their earnest effort can be made useful, economical, practical, and serviceable, it makes me know that North Carolina has reason to feel better about the future of her public health work than she has ever felt before. After listening to Dr. Malone's description of his individual work, after realizing from what he says how much care and thought and practical sense he has put into it, I do not understand how any man can leave this day's work without going home converted to a medical religion that makes him

give his heart and mind and soul and money to the betterment of North Carolina's people.

The President: I am sure that the association would be pleased to hear from the pioneer health officer of North Carolina, in my mind, the greatest health worker North Carolina has ever had, that is, Dr. Lewis.

Dr. Richard H. Lewis, Raleigh: I want, in the first place, to make my acknowledgment to our President for his kind introduction.

I feel that I ought to say a word in endorsement of the movement that is taking place in our State, so well set forth by Dr. McBrayer. It seems to me to be one of the best things that could be suggested. I say this for this reason: that behind every movement for the good of man there is somewhere a good woman. You can well understand how a trained nurse, who is at the same time a good woman, endowed with the missionary spirit, would have much greater effect in this phase of our work than the ordinary male health officer could have. There would be a greater intimacy and freedom between the nurse and the mother of the family, and we know the welfare of the family is chiefly in the hands of the mistress of the house. The husband is away, engaged in other pursuits. The mother is at home day and night, and has the immediate care of the children and of domestic affairs generally. So it seems to me that there is no movement in our development that we can support more heartily and with greater hope of success in promoting our work than the public health nurse. I am very glad that Dr. McBrayer has read such an excellent paper, and I am very glad, indeed, to know that the movement is beginning to make progress.

Dr. McBrayer: I want to introduce to this association my friend, Dr. S. E. Thompson, Medical Director of the Texas State Tuberculosis Sanatorium, who is present and who is to read a paper before the Medical Society when it convenes. I have much pleasure in presenting Dr. Thompson.

Dr. S. E. Thompson, Carlsbad, Texas: Mr. President and Members of the North Carolina State Board of Health: I most cheerfully endorse Dr. McBrayer's paper. There is no question but what his contentions are right. You must put into effect the plans and arrangements for which his paper pleads in the way of preventive medicine. You cannot fight tuberculosis by treating the patient in a tuberculosis sanatorium; you cannot fight typhoid fever by treating the patient; you cannot fight or prevent any infectious disease simply by treating it. Then the question arises, what are we going to do? The average doctor has not the time to look after the public health measures. Therefore, the whole-time health officers and nurses must come to meet the situation. This

is the only way by which we may successfully meet and control the question of preventive madicine. The great question is, how are we going to do it? How can we stimulate public sentiment to the point where there will be a demand for the full time health officer and the public health nurse.

We were discussing this afternoon the interest manifested by the people in saving hogs and the lack of interest in saving babies. There is an underlying foundation and a reason for every condition that exists. There must be a strong reason why a man will approve an outlay of money to save hogs and at the same time cannot be aroused when it comes to saving people.

It was stated that we cannot get the people to believe there are such things as germs. It is well for us to remember that error dies hard, and for twenty-six hundred years we taught people that tuberculosis was inherited. My grandfather graduated from one of the best medical schools in New York, and he taught his clientele that malaria was due to bad air, hence its name; and advised the mothers who came under his teachings that it was well for their babies to have measles while young, as the disease would be more dangerous later in life.

The first thing necessary is to take out of the minds of the people that which we have been planting for centuries, and instruct them along the correct lines. I sometimes feel that they think about us as my negro driver once appeared to think about me: I had a case out in the country in the first week of typhoid fever. I had been unable to make a positive diagnosis. On this occasion the negro sat in the buggy and watched me examine the patient closely for probably thirty minutes. When I had finished and returned to the buggy, I saw that he had something on his mind. After we had driven about two miles, he turned to me and asked, "Dr. Thompson, didn't you have an awful hard time guessin' jest 'xactly what was the matter with folks when you fust com-'enced trying to practice medicin'?" Education is the very crux of the situation. There is no other way of arousing the people to the point where these things will be demanded and provided for. We must remember that these things come as a result of public sentiment, and we must create this sentiment. Public sentiment writes the verdict of juries, makes and unmakes law, has crowned and uncrowned kings; and whenever the people want these things, they will come.

Dr. McBrayer's paper is right, and I wish to compliment you on what you are doing along these lines in North Carolina. Texas is several times larger than North Carolina—900 miles across it—and I admit, with embarrassment, that you have done more in the way of educating the people along the lines of preventive medicine than we have.

THE PHYSICIAN AND PUBLIC HEALTH.

Dr. Cyrus Thompson, Jacksonville, N. C.

I am in an exceedingly unfortunate position in that having no paper written, I have just had my dinner, whereat I fared very sumptuously. So circumstanced, I have no inclination whatever to speak. If there had been any reasonable way to feign myself sick, then I should have availed myself of it to escape this.

Dr. Cooper asked me to take a place on this program, and I did not know how to refuse him. Now I wish he were a cooper indeed, and could cooper me up so that I could stand acceptably in the position into which he has forced me. I am assigned the subject of the Physician and the Public Health. I do not know what in the world to say about it, and, mistrusting myself, I asked one or two of my friends this afternoon to let me consult with them and see if they could tell me what to say; but they dodged me, and I am left alone in my youth and impulchritude.

There are physicians and there is the matter of public health; and there ought to be, as I hope I may show before I am through, a very definite and certain connection between the two. I do not say, however, that this connection is at present very definite and certain as a matter of fact.

I intimated this afternoon a bit of an anecdote which a good woman told me in my little town of Jacksonville yesterday afternoon—it being Sunday, and she and I having just come out of Sunday School—a little anecdote about a crazy old man in the county of Duplin. Dr. McBrayer, it occurred in the long past, before there was an insane asylum in North Carolina. The State had not yet been taught its obligation to these unfortunates. This old man was taken to the jail to lift the burden from his family. He was brought out of jail every day to get something of air and sunlight. He was not harmful or dangerous. He was out of joint with the world unfortunately. They forgot him one day and he sat out in front of the jail until the stars had come out; and when they came out with apology for seeming neglect, he said, "I am glad you let me stay out here as long as you did let me stay. Do you know I have sat here all day and I have looked at the blue sky and the glorious sunlight, and felt the gentle breezes; and I saw the sun die away in the west, and it was full of colors richer than ever painter could spread upon canvas; it was emerald and sapphire and rose, and then the stars began to come out as if the angels were looking down upon me; and do you

know it just filled my soul with this one thought, what a beautiful world, what a beautiful world it is." And as they walked him on into the jail he said, "Yes, it is a beautiful world; and I am persuaded, whatever misfortune befalls me, God Almighty did his best when he made this world so beautiful." As they locked him in, he said, "God did a fine piece of work when he made this world; but didn't he do *something* when he folksed it?" Did you ever have an idea like that? It is the old missionary hymn, "Where every prospect pleases and only man is vile."

There is nothing in the world more interesting than people. There is not anything stranger in the world than folks, except other folks; and we are dealing with folks. And we are dealing with folks fussing along down the road like a Ford machine in a sandy country. And they are blamed hard to get out of the rut; and it is your business to get them out of the rut; and sometimes you almost despair of getting them out and come to a dead standstill, especially if anybody is ahead of you.

When you go out with the propaganda of public health in North Carolina, it is necessary that you get hold of a few fundamental principles and work along these fundamental lines. There are not many fundamental facts in life; and when a man can get hold of these fundamental facts, he can make the application and draw out the corollaries according to his circumstances. Just in the proportion that we have the mental ability to draw out the corollaries, and have the physical and financial ability to make the application, just in that proportion are we effective men of sense and not fools; just in that proportion are we helpful men in this world, which God has made so wonderfully beautiful. (To the stenographer: If you are not taking down what I am saying it will never be heard of after tonight.)

I am going to talk on one or two fundamental facts right here. If you started out, for instance, Dr. Rankin, when we used to do it that way, to vaccinate for the protection of folks that did not have sense enough to be vaccinated themselves, taking care of fools at public expense, somebody took up arms against you. He threw himself upon his rights. I am not going to make a prohibition speech in a town as dry as Durham, but if you wanted prohibition carried in Durham and in North Carolina, you would find some men saying that you are trying to take all of our rights, our liberties, away from us. Have you ever thought that way? You may have thought that way yourself, I cannot tell. But I am going to lay down this one fundamental fact, that all government is founded on denial of rights. There can be no contradiction of this fact; and this, therefore, follows like a corollary out of that, that all civilization, all progress, and all development is by denial of rights; by enforcement of the duty of the individual to the rest, and of

the rest to the individual. There can be no such thing as personal rights when the rights of others are thereby contravened. There is no absolute freedom or personal right anywhere except it be in a state of savagery; and that always means destruction and waste. There is not any civilization anywhere except by denial of rights; and there is the highest civilization and the least waste in that land which most curtails what men call their natural rights, and most enforces the exercise of their obligations.

You ask me what kind of government is best? I cannot tell you what is best by way of form; form waits upon development; but that government is best which forces you and me and every citizen in any state at all so to use himself as to make the most of himself and the most of every one else that is within the reach of his influence.

Now these facts are fundamental, and they are the foundation for all public health service. They not only give us the right to do, but more than that, they come down upon us with compelling power that we shall do. Bear in mind now, that while this is true, we are dealing with North Carolinians, with folks who by comparison are the best in the world; but they are mere infants, they are minors, they need guardianship, and they must have guardianship for their own development and good.

Oh, when you get to the bottom of it, it is this one fundamental divine doctrine, that the strong must bear the burdens of the weak; and this out of that, the weak must be taught that the strong see their obligation and are determined in spite of the weak to exercise it.

Now, how are you going to do it? If you are forced by your obligation to do it, you will never succeed in the world by force. You cannot put any fruitful idea in my head or in any other man's, woman's or child's head by force. You can put it there only by teaching, by persuasion. There must be a common ground for teacher and pupil. You know what you mean by persuade? Some time ago I was teaching a class of adults. I asked a man what is meant by the word persuade. I could not get a man there to tell me etymologically what the word meant. Can some man tell me here? Don't all speak at once. Per, through, and suadere, to make sweet; and you can teach anything to anybody if you will make the thing seem good to him. The road to hell is paved with good intentions, the way seems sweet to the man; and the paths of glory are trod because of the sense of their sweetness and supreme beauty.

All fixed progress is got by education and there is no other way to get any sort of progress at all. Well, you may have a teacher, and he knows that his business is to teach; and then he will not always be a

successful teacher. In other words, it requires a deal of wisdom to teach; as we were talking this afternoon, the whole of the weakness of the public school system in North Carolina lies in this fact, that your teachers have not got sense enough to teach your varying children. It takes wisdom. That is necessary to teach; and before you go ahead and teach you must know the character and prejudices of those that you are going to teach, the nature of those that you are going to teach. Now, in North Carolina we have a very peculiar people. Our people are a very conservative people, a very proud people; and they have the desire to do right implanted in them as strongly as it is in any people at all; but because we are so conservative, slow-moving, and unemotional, we are exceptionally hard to teach. Some one said this afternoon, "It is hard to teach an old dog new tricks." It is difficult to teach people in North Carolina out of traditional paths; but if you go at them right, get some common ground, you may teach them effectively. Somebody has got to be the leader in this movement. What is everybody's business is nobody's business. The State of North Carolina has made it the business of the State Board of Health to teach the value of health to the people in North Carolina.

We have been exceedingly fortunate to have such a man as Dr. Rankin (I say it to his face) to take the place of my young friend, Dr. Lewis, as Secretary of the Board. We are teaching the people because, as I said in the beginning, they are incapable of taking the best care of themselves. I may remark that there was never a balder-faced lie penned on paper than the declaration that all men are created free and equal, and that all just powers of government are derived from the consent of the governed. That may be heresy; but I am not a politician. If it is the truth it is all right. I could tell a lie, but I am not going to do it. George Washington was born on the 22d day of February. He could not tell a lie. I was born on the 8th day of February; I could, but I would not do it. No, no, no. I do not need to.

If people are unable to care for themselves and the strong have to bear the burdens of the weak; if we must go out and teach people to this end, what are you going to teach them? That it is best to be vaccinated; that it is best to be quarantined; that it is best to take the anti-typhoid treatment? Aye, more than that: don't teach them these detailed things alone, but teach them this, that the valuablest thing in all the world is a man; that the valuablest thing in all the world is a woman; that the valuablest thing in all the world is a strong child, and that all other things in creation get their value by reason of the presence and the care and the helpfulness of the men and women about them. In other words, go out and teach the people what things are worth while, develop in them

a just sense of everlasting values; and when you have taught them this, what are the really valuable things, you will then easily draw these corollaries out of this one fundamental principle. Then it is easy to be vaccinated against smallpox; it is easy to be vaccinated against typhoid fever; it is easy to be quarantined for scarlet fever, diphtheria, and whooping cough and the like.

Is that a right smart job cut out for you? How many physicians, let me inject this question right here, how many physicians in North Carolina are giving any attention to this job? Many? Not many! Not many!

Let us run on a little bit further. It is a lack of disposition to change whatever state we may be placed in. It is natural inertia. The whole world is ruled by public sentiment. There was a time when the State gave to Dr. Wood about $100, the State of North Carolina gave $100 for the support and use of a Board of Health. If it had been a fisherman going out to fish, he would hardly have wet his bait. Now about how much is the State giving, Dr. Rankin? About $65,000. A year from now she will raise that figure and ten years from now she will raise it very much. Dr. Rankin, we are teaching the Legislature of North Carolina if we are not teaching anybody else in North Carolina. Send a man from the piny-woodsiest county in the State, send him to the Legislature, and let us talk to him; and when he goes home his vision is widened, just split wide open like a poprind watermelon. I tell you that when you can teach legislators, citizens, men and women and children the things that make for their real happiness and real wealth in this day and generation and the generations to follow, they will not wait for you to force them by law, but the public sentiment will accept and demand all the help that care of the public health can give them. It was said by Peter, who protested at first to the washing of his feet, "Nay, not my feet only, but my hands and my head also!" And the time will come through this patient teaching of the things of real value and the showing of definite results as we are beginning to show, that the people will demand all that we can do. The matter will not be such an uphill thing then as it has been, and as it is now.

Just let me make a statement or two. I said a man clung to his rights but ignored his obligations. If you rightly educate him he thinks less of his personal right and more of his obligation. The trouble in the way and the thing that keeps him in the rut is his selfishness, his miserable, slavish ignorance, and the only thing that can get him out of the rut is an intelligent and not an ignorant selfishness; because if he is made intelligently selfish he will comprehend this fundamental fact, that his own best interests are wrapped up in and everlastingly involved

in the welfare of his neighbor. That is the task before us; to teach this divine fundamental.

Dr. Cooper is well nigh a regenerator; with zeal according to knowledge, he is doing a great work. How long, O Lord, do you conceive that it would take the pulpit to work out a regeneration like that? I am not going to say anything about the preachers. I go to hear them. I know their limitations; I like them and sympathize with them. If I had had religion enough of a sort, doubtless I might have been one myself. But I will tell you this. A preacher, when you put out a plan for a health Sunday, will ignore your health Sunday, the average one will; and he will count himself abundantly satisfied, his work well done, and the Lord's cause gloriously served if the collections come handsomely in. This world is beautiful, but very real.

Let's sum up this thing a little bit further. What is a man's business in this world anyhow? What business have you got here? Have you got any? I have seen some men that I did not think had any. But if you can educate folks along the lines that I have indicated, you will have a vast deal of business in this world, because their selfishness will be converted by you into service; and whenever a man's labor can be interpreted in terms of service, whenever a man puts more into life than he takes out of the world, that man takes his proud position beside Almighty God as a constructor, and until he has put himself there he stands by the shores of hell in the grasp of the devil as a destroyer; because you cannot see and I cannot see that there should be a line of demarcation between the devil and God except that God is constructive everlastingly and the devil is wasteful and destructive always. The man who tries to make healthier stock, and happier, longer lives in North Carolina, that man and that woman stand as children of the great God. I need not tell you the position that those occupy that do not put themselves on that side. It is work, it is work, it is work! It is upbuilding, it is conservation, which is divine, in the face of waste, which is diabolical. This is the business of life.

Let us go on a little bit more. Bear with me patiently: I am going to quit before long.

This is the character of the campaign we have been waging in North Carolina, from the beginning of $100 in the early days. My distinguished friend to the right, Dr. Lewis, began on $2,000 and accomplished a marvelous work. The committee was reporting progress. That is the character of the work we are doing. Who have been the leaders? The pioneer was Dr. Thomas F. Wood. Think of it, my friends, there was a man who took up this work and went forward to do it for the people of North Carolina, and the State of North Carolina gave him

but $100. The State then knew no better. Think of my friend over there, and all the help that he got was $2,000; but he was a leader. Thos. F. Wood was a leader, and Rankin is a leader, and Cooper is a leader, and a few other men in North Carolina are leaders and saving educators.

But how about the doctors in general—what zeal of leadership have these men who ought to be the public health teachers of their communities shown? How much have they done? That is the problem that I would like to have solved tonight. How much have they done? I am afraid if they were Episcopalians, on the average they would say, "Oh, Lord, we haven't done anything, and we have left undone the things that we ought to have done, and there is no public health sentiment in us." I think they would make that kind of confession. So far as the teaching is concerned, I verily believe that the school teachers in North Carolina, as ignorant as they are, have done more than the rank and file of physicians in North Carolina. If I am not right, rise up and correct me, because I want to be right. I will tell you another great factor. It is the public press in North Carolina. The folks are not indebted to the press for political news, or political salvation so much as they are indebted to the public press in North Carolina for helping along in the propaganda of public health. Where does the doctor come in? Ought he not to be the leader in public health service in North Carolina? But is he? Why, my friends, I remember this, that years ago, as good a man as ever lived in the State, a man in the profession, now dead and gone, when Thomas F. Wood spoke of public health and talked about quarantine and preventable diseases, then this good doctor said, "I wonder if Tom Wood is fool enough to think we are going to take the bread out of our own mouths?" Do you get that idea? They are going to take the bread out of our own mouths! Why, it has not been more than two or three years ago, Dr. Rankin, when you said something about starting an anti-malaria crusade in North Carolina that one good doctor wrote me and said, "You are on the Board of Health; you had better write Rankin to stop that sort of stuff. We will go along with you in this public health matter as to quarantine and so on, but when it begins to touch our practice—our meat and bread—this whole thing will be brought into disrepute in the profession." That is sad! But it is an old story: "Know ye not, sirs, that by this craft we have our wealth? Great is Diana of the Ephesians!"

I don't know, Dr. Thompson, whether you have anything like that in Texas, but your folks are terribly human. You have got it, doctor, and if it were spoken out in North Carolina, I dare say nine-tenths of the profession in North Carolina feel as these two men felt; that you in

Texas and we have got to go up against the ignorance of the laity not alone, but the selfishness, the commercialism of the profession as well. For shame!

Is there anything in that? Is there? Oh, I will tell you, no man ought ever to take hold of the profession of medicine; nay, no man ought to go into any calling whatever as his business in the world for the mere dollars that he can make out of it. And when he goes into it for the dollars, and the dollars only, that he can make out of it, then that man is but a hireling and is deserving of the esteem of a hireling only. Why should you go into the practice of medicine, why should you teach school, why should you take up any vocation at all? Simply that you may be helpful and serviceable; that you may contribute a man's part to the uplift of the world. The physician's legitimate business is to work himself out of a job; that should be his ideal. And the man who does not take that conception of his work, and work in order to do that, ought never to go around people who are afflicted with human ailments. I am a physician and I am wonderfully proud that I am. I don't know any prouder position that I could occupy than that. Will I make much money? No; but I will live, and I will get more satisfaction out of the joy of my own soul so living than ever money could buy; and I trust I may get a degree of satisfaction that could come to me in no other way.

Did any of you ever read Trilby? Do you remember the conversation between Trilby and the Sculptor, when Trilby asked the sculptor, "Do you really believe there is a God?" He said, "Sometimes, Trilby, I am in doubt; but this I know, if there is not, then so much the worse for me. Do you know I never work my best upon a statue and look upon it afterward that this thought does not come over me and well-nigh overwhelm me, and then go out unspoken as a prayer: I do hope that it may satisfy Him?"

That is it, it cannot satisfy God Almighty unless you are constructive, unless you are helpful. Let us draw out the corollary from this. If you want to do something, here is the place that you can do your best and greatest work. And the time will come that the zeal of Cooper and the wisdom that Rankin has shown, the pioneer work of Wood and of Lewis, will have historic recognition for our children to read.

If there is anybody in this audience who is better than my estimate of a large portion of the physicians in North Carolina, if he is better, then he has no offense. If there is anyone who feels he is not so good as he ought to be, he has a fine opportunity for amendment, and amendment is always in order. And if there is any who is not and thinks that he is, why it is a fine time from now on for him to show what he is.

I am just about through.

I know a fellow might think that if he didn't look out for himself he would perish to death; and that if the State Board of Health persists in this work, he will just simply be perished to death. If we stop all typhoid and all measles and whooping cough and everything like that, if we eradicate malaria, what are we doctors going to do for a living? Now, let me tell you. You need not be afraid that with all your endeavor you are going to rid the world of all sickness. The ladies' hats are built one fashion this season. They will be another fashion next season. Humanity will always have some ills for exercise of your sympathy.

Mr. Roosevelt said, "Fear God and take your part." Take your part in this great constructive work that lies before you.

Now, my friends, go happily and helpfully through life, and if you strike a time when the people by your efforts are unreasonably healthy and it is a dry time for you, go singing right along, "In some way or other the Lord will provide." David said, "I have never seen the righteous forsaken, nor his seed begging bread." So let us live and work in abiding faith in the everlasting providence of the Infinite!

DISCUSSION.

Dr. G. M. Cooper: I think it would be sacrilege for ordinary folks to undertake to discuss a paper like Dr. Thompson has given us. We have had an opportunity that comes but once in a lifetime, of hearing Cyrus Thompson at his best. There has never been but one man in North Carolina that would be able to measure up to a discussion of this paper, and that is the late Zeb Vance, who has been dead twenty years.

Dr. Thompson: I thank Dr. Cooper very kindly for what he has said, but I haven't anything else to say and don't want to say anything else. I didn't want to say what I did say, but said it because I had to; and I feel very much better since I said it. I was out to dinner, you know, and I enjoyed my dinner. I think it has just about digested. I could eat again.

I am delighted to be with you, and it is one of the pleasures of my life to come to the State Medical Society. I like to see my friends and I like to be with you. You are all wonderfully kind to me. The only regret I have is that the man who fixed up the calendars made the years too long. If he had made them three or four years in one, it would have been much better. I hope to stay here with you through the session. I have nothing further, Mr. President.

REPORT OF AUDITING COMMITTEE.

We, your Auditing Committee, beg leave to submit the following report:

We have examined the report of the Secretary-Treasurer and find the same to be correct.

J. R. McCracken,
W. M. Jones,
C. Daligny,
Committee.

Report of Auditing Committee accepted.

REPORT OF NOMINATING COMMITTEE.

Mr. President, your committee has, after due consideration of the many men who have won by their labors in the cause of public health a place that would entitle them to become officers of this association, finally decided upon the following:

President—Dr. Arch. Cheatham, Durham.
Vice President—Dr. D. C. Absher, Vance County.
Secretary-Treasurer—Dr. George M. Cooper, Raleigh.

Respectfully submitted,

L. B. McBrayer,
For the Committee.

Moved and seconded that the report of the Nominating Committee be accepted. Motion carried.

Dr. Rankin: There was a resolution offered this morning by Dr. Way in regard to legislation for establishing county hospitals. I would like to know from the chairman whether that resolution was considered or what it is to do.

The President: Dr. Way was to furnish it as a resolution, but he never put it in writing, so we had nothing to go on.

Dr. McBrayer: Dr. Nesbitt, of Wilmington, was Vice President this last year and it has been the custom of this association to promote the Vice President to the President's chair. The committee, while entertaining the very highest regard for Dr. Nesbitt and for his work, after due deliberation felt that it would not be wise to depart from the rule

that has always existed in the State Medical Society, to make a man an officer who was not in attendance on the association. While the committee regret this, still it did not feel that it was wise to do that and it is hoped by the committee, and no doubt by the other members of this association, that this association may in the future bestow the honors of President on Dr. Nesbitt, which he so richly deserves.

Dr. Thompson: I may be a little out of order, but I just wished to refresh my mind. You have not delivered your inaugural address.

ADDRESS OF DR. ARCH. CHEATHAM, PRESIDENT-ELECT.

I feel it a great honor to be made President of this organization, I might say of this body of working men, although it comes because of the absence of a man who ought to have it. I will try and do the best I can. I did not expect it because I have only been in the Society three years. This is the third time I have attended the meetings and I think you are unwise in skipping the older men who have been in the service longer than I have. I am just one of the plain working men and this honor came by accident. Some accidents are bad things for communities, but I hope this one will not be bad for this Society.

Dr. J. Howell Way, Waynesville, offered the following resolution:

"*Resolved*, by the North Carolina State Health Officers' Association, that in its judgment, the time has now arrived for the individual counties of the State to provide for the erection and maintenance of local county hospitals for the care and treatment of their sick as a necessary and vital part of a proper and advanced public health policy."

Dr. Way moved the adoption of the resolution and spoke as follows: This resolution, gentlemen, carries the idea, calls attention to the fact, if you adopt it, that in our judgment as public health workers in North Carolina, the time is now ripe for the separate counties to provide proper care for their sick and afflicted as a necessary public health measure. We believe the sick of a community should have at least as much attention as is given the criminal classes! Witness the comfortable jails built to house our malefactors, and the luxuriously appointed courthouses erected in which to try these same malefactors. Are not the sick worthy of equal consideration? It has been said in the past that we were a poor people and could not afford local county or community hospitals. If this was ever true, it is not true now. By far the large majority of

local hospitals in North Carolina for the care of sick people have been built by physicians from their limited funds.

Often their construction has saddled financial obligations upon medical men from which they never ceased to be burdened with, all because of a certain pride of profession, or at times a sense of possible duty, that impelled them to take the initiative in providing for the community facilities for the care of the sick, which duty is a community duty, and not a duty of the medical profession as individuals.

There is no more justice in assuming physicians should erect and pay for the maintenance of a community hospital than there exists justice in the suggestion that lawyers should build the jails and courthouses, or ministers of religion erect the churches for the use of the other people of a community. A proper appreciation of the advantages of a modern hospital is one of the evidences of advanced civilization, and with this appreciation properly should also come the disposition on the part of local communities to make provision for the care of their sick. The county is the unit of our governmental system, and the counties should feel it as much incumbent on them to make proper provision for the care of those afflicted in body, as well as for those whose moral natures are attuned at variance with the established moral thought of the community. In other words, let us put it up to the average county of our great State, that if the county is financially able to spend public funds to provide for the criminal classes of society, there exists at least an equally strong, if not greater series of reasons why those physically unfit should be cared for. Take the school inspection work going on all over the State as an example of the need of local hospitals. Let the inspector note the imperfections of a given number of children. How many of them are financially able to go to some distant city where proper facilities for the operative care of many such patients are to be had. Once have a local hospital, and there inevitably develops from among the local profession men capable, willing, and anxious to perform the needful operations for which many people of our State yet go to distant cities where ample hospital facilities are to be had. This costs more money to our citizens and retards the development of the local medical profession.

But this is not all. The large majority of patients needing surgical treatment never get such benefits unless there is a community hospital. Are not the boys and girls, the men and women of this grand old State worth the investment of sufficient county funds to erect and maintain in every county in North Carolina a community hospital? We will never be a fully civilized people until this is done, and now is the time to make a start in thus bettering the physical conditions of our people.

I move the adoption of the resolution and its giving to the public press as an expression of intelligent professional thought on an important subject.

Carried unanimously.

Dr. Laughinghouse: If it is relevant to this resolution I want to say that as a general practitioner deeply interested in public health, watching as closely as I can the results of public health work, to my mind a county hospital will do more to carry the message to Garcia, as Dr. McBrayer is so fond of saying, than any one thing we can do. Defective teeth cannot be treated from a public health standpoint among children who are not able to receive money from their parents for this work, unless it be in a dental clinic, and that dental clinic cannot be successfully carried on unless it be under the guidance and by the expense of a county hospital. Adenoids and tonsils are found every day by every whole-time health officer in North Carolina, as are deflections of the nasal septum. The children are being apprised of it and the parents are being apprised, and the physicians advise operations, but there is nowhere to go. Consequently the nose and throat work of the whole-time health officer, so far as actual results are concerned, is greatly hampered, not because the parent is unwilling, not because the physician who is attending the family is careless, but simply because there is no place in which this work can be properly and economically done. I know that tonsillotomy can be performed in private homes. As far as that is concerned anything in surgery can be done in a private home, provided you arrange that private home so that surgery can be done safely. So far as the whole-time health men are concerned, probably they have nothing especially to do with the functions of a county hospital other than those it performs for public health work. Therefore, it seems to me not quite right or proper to go into the details of the usefulness of a county hospital here, other than to impress, as public health workers, the necessity of county hospitals for this special line of work, and as a general practitioner, not a whole-time health man, I am deeply interested and thoroughly convinced that nothing we can do will bring about more practicable, useful benefit than the adoption of this resolution.

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CONSTITUTION AND BY-LAWS

OF THE

MEDICAL SOCIETY OF THE STATE OF NORTH CAROLINA

[Adopted at the Fiftieth Annual Session, Hot Springs, N. C., June 3-5, 1903.]

ARTICLE I.—TITLE OF THE SOCIETY.

The name and title of this organization shall be "The Medical Society of the State of North Carolina."

ARTICLE II.—PURPOSES OF THE SOCIETY.

The purpose of this Society shall be to federate and bring into one compact organization the entire medical profession of the State of North Carolina, and to unite with similar organizations in other States to form the American Medical Association; with a view to the extension of medical knowledge, and to the advancement of medical science; to the elevation of the standard of medical education, and to the enactment and enforcement of just medical laws; to the promotion of friendly intercourse among physicians, and to the guarding and fostering of their material interests; and to the enlightenment and direction of public opinion in regard to the great problems of State medicine; so that the profession shall become more capable and honorable within itself, and more useful to the public in the prevention and cure of disease, and in prolonging and adding comfort to life.

ARTICLE III.—COMPONENT SOCIETIES.

Component societies shall consist of those district and county medical societies which hold charters from this State Society.

ARTICLE IV.—COMPOSITION OF THE SOCIETY.

SECTION 1. This Society shall consist of Members, Delegates, Guests, Honorary Members, and Honorary Fellows.

SEC. 2. MEMBERS.—The members of this Society shall be the members of the component county medical societies.

SEC. 3. DELEGATES.—Delegates shall be those members who are elected in accordance with this Constitution and By-laws to represent their respective component county societies in the House of Delegates of this Society.

SEC. 4. GUESTS.—Any distinguished physician not a resident of this State may become a guest during any annual session upon invitation of the Society, or its Council, and shall be accorded the privilege of participating in all of the scientific work for that session.

SEC. 5. THE HONORARY MEMBERS shall consist of such regular physicians as have won distinction by their contributions to medical science; those

elderly physicians who, prior to their retirement from practice, have displayed a proper interest in the welfare of this Society, or who, by their example, have reflected credit and honor upon the profession. They must be nominated by the Council and receive a two-thirds vote of the members of the House of Delegates present at the meeting at which their names are presented for election. They shall be exempt from all dues and fines, and shall be entitled to all the privileges of the Society, except the right to vote and hold office.

SEC. 6. THE HONORARY FELLOWS shall consist of such physicians as have been members of this Society continuously for thirty years, and whose dues have been paid during that time. They shall receive a two-thirds vote of the members of the House of Delegates present at the meeting at which their names are proposed for promotion. They shall be exempt from all dues and fines, and shall be entitled to all the privileges enjoyed by active members in good standing.

ARTICLE V.—HOUSE OF DELEGATES.

The House of Delegates shall be the legislative and business body of the Society, and shall consist of (1) delegates elected by the component county societies, and (2) *ex officio* the officers of the Society as defined in this Constitution.

ARTICLE VI.—SECTIONS AND DISTRICT SOCIETIES.

The House of Delegates may provide for a division of the Scientific work of the Society into appropriate sections, and for the organization of such council or district societies as will promote the best interests of the profession, such societies can be composed exclusively of members of component county societies.

ARTICLE VII.—SESSIONS AND MEETINGS.

SECTION 1. The Society shall hold an Annual Session, during which there shall be held daily not less than two General Meetings, which shall be open to all registered members, delegates and guests.

SEC. 2. The time and place for holding each Annual Session shall be fixed by the House of Delegates.

ARTICLE VIII.—OFFICERS.

SECTION 1. The officers of this Society shall be a President, three Vice-Presidents, a Secretary, Treasurer, and ten Councilors.

SEC. 2. The President and Vice-Presidents shall be elected for a term of one year. The Secretary, Treasurer and Councilors shall be elected for terms of three years each. All of these officers shall serve until their successors are elected and installed.

SEC. 3. The officers of this Society shall be elected by ballot, a majority of the votes cast being necessary to elect, by the House of Delegates on the morning of the last day of the Annual Session, but no Delegate shall be eligible to any office named in the preceding section, except that of Councilor, and no person shall be elected to any such office who is not in attendance upon the Annual Session and who has not been a member of the Society for the past three years. Any nominee for the office of President shall have been

an active member of the Society for five years, including the year of his election, shall have attended two of three meetings immediately preceding his nomination, including the meeting at which he is nominated; and shall be a member in good standing at the time of his nomination.

ARTICLE IX.—The Board of Medical Examiners.

Section 1. The seven members of the "Board of Medical Examiners of the State of North Carolina" shall be elected by ballot by the members of the Society in general meeting for a term of six years, a majority of the votes cast being necessary to a choice. The election shall be held on the second day of the Annual Meeting and the balloting shall continue until the entire number is elected.

Sec. 2. A vacancy occurring from any cause other than expiration of term of office shall be filled by the Board or a quorum thereof.

Sec. 3. The elective members of the State Board of Health and of the State Board of Medical Examiners for Nurses shall be elected by the members of the Society in general meeting on the second day of the session.

ARTICLE X.—Funds and Expenses.

Funds for meeting the expenses of the Society shall be arranged for by the House of Delegates by an equal per capita assessment upon each county society, to be fixed by the House of Delegates, by voluntary contribution, and from the profits of its publication. Funds may be appropriated by the House of Delegates to defray the expenses of the annual sessions, for publication, and for such other purposes as will promote the welfare of the Society and profession.

ARTICLE XI.—Referendum.

The general meeting of the Society may, by a two-thirds vote, order a general referendum upon any question pending before the House of Delegates, and the House of Delegates may, by a similar vote of its own members, or after a like vote of the general meeting, submit any such question to the membership of the Society for a final vote; and if the persons voting shall comprise a majority of all the members of the Society present and voting, shall determine the question, and be binding upon the House of Delegates.

ARTICLE XII.—The Seal.

The Society shall have a common seal, with power to break, change or renew the same at pleasure.

ARTICLE XIII.—Amendments.

The House of Delegates may amend any article of this Constitution by a two-thirds vote of the delegates registered at that annual session, provided that such amendment shall have been presented in open meeting at the previous annual session, and that it shall have been sent officially to each component county society at least two months before the session at which final action is to be taken.

BY-LAWS.

CHAPTER I.—Membership.

Section 1. All members of the component county societies shall be privileged to attend all meetings and take part in all of the proceedings of the annual sessions, and shall be eligible to any office within the gift of the Society.

Sec. 2. The name of a physician upon the properly certified roster of members or list of delegates, of a chartered county society which has paid its annual assessment, shall be *prima facie* evidence of his right to register at the annual session in the respective bodies of this Society: *Provided*, that licentiates of the State Board of Medical Examiners may, if the House of Delegates so elects, at the meeting of the Society at which they receive license, be entitled to register upon payment of the annual dues for that year, and be accorded all the privileges of other members for that year, the Secretary of the Society entering their names and so certifying to the Secretary of the county society where the said licentiates reside, but said licentiates desiring to continue membership in this Society must affiliate with their local county society.

Sec. 3. No person who is under sentence of suspension or expulsion from any component society of this Society, or whose name has been dropped from its roll of members, shall be entitled to any of the rights or benefits of this Society, nor shall he be permitted to take any part in any of its proceedings until such time as he has been relieved of such disability.

Sec. 4. Each member in attendance at the annual session shall enter his name on the registration book, indicating the component society of which he is a member. When his right to membership has been verified by reference to the roster of his society, he shall receive a badge, which shall be evidence of his right to all the privileges of membership at that session. No member or delegate shall take part in any of the proceedings of an annual session until he has complied with the provisions of this section.

CHAPTER II.—Annual and Special Sessions of the Society.

Section 1. The Society shall hold an annual session at such time and place as has been fixed at the preceding annual session.

Sec. 2. Special sessions of either the Society or House of Delegates shall be called by the President at his discretion, or upon petition of twenty delegates.

CHAPTER III.—General Meetings.

Section 1. The general meetings shall include all registered members, delegates and guests, who shall have equal right to participate in the proceedings and discussions; and, except guests and honorary members, to vote on pending questions. Each general meeting shall be presided over by the President, or in his absence or disability, or by his request, by one of the Vice-Presidents. Before it, at such time and place as may have been arranged, shall be delivered the annual address of the President, and the annual orations, and the entire time of the session, so far as may be, shall be devoted to papers and discussions relating to scientific medicine.

SEC. 2. The general meeting shall have authority to create committees or commissions for scientific investigations of special interest and importance to the profession and public, and to receive and dispose of reports of the same; but any expense in connection therewith must first be approved of by the House of Delegates.

SEC. 3. Except by special vote, the order of exercises, papers and discussions, as set forth in the official program shall be followed from day to day until it has been completed.

SEC. 4. No address or paper before the Society, except those of the President, Orator and Essayist, shall occupy more than twenty minutes, in its delivery; and no member shall speak longer than five minutes nor more than once on any subject.

SEC. 5. All papers read before the Society shall be its property. Each paper shall be deposited with the Secretary when read, and if this is not done it shall not be published.

CHAPPTER IV.—HOUSE OF DELEGATES.

SECTION 1. The House of Delegates shall meet annually at the time and place of the annual session of the Society, and shall so fix hours of meeting as not to conflict with the first general meeting of the Society, or with the meeting held for the address of the President and the annual orations, and so as to give delegates an opportunity to attend the other scientific proceedings and discussions so far as is consistent with their duties. But if the business interests of the Society and profession require, it may meet in advance, or remain in session after the final adjournment of the general meeting.

SEC. 2. Each component county society shall be entitled to send to the House of Delegates each year one delegate for every twenty-five members, and one for each major fraction thereof, but each county society holding a charter from this Society which has made its annual report and paid its assessment as provided in this Constitution and By-Laws, shall be entitled to one delegate.

SEC. 3. A majority of the registered delegates shall constitute a quorum, and all of the meetings of the House of Delegates shall be open to members of the Society.

SEC. 4. It shall, through its officers, Council, and otherwise, give diligent attention to and foster the scientific work and spirit of the Society, and shall constantly study and strive to make each annual session a stepping-stone to future ones of higher interest.

SEC. 5. It shall consider and advise as to the material interests of the profession, and of the public in those important matters wherein it is dependent upon the profession, and shall use its influence to secure and enforce all proper medical and public health legislation, and to diffuse popular information in relation thereto.

SEC. 6. It shall make careful inquiry into the condition of the profession of each county in the State, and shall have authority to adopt such methods as may be deemed most efficient for building up and increasing the interest in such county societies as already exist, and for organizing the profession in counties where societies do not exist. It shall especially and systematically endeavor to promote friendly intercourse between physicians of the same locality, and shall continue these efforts until every physician in every

county of the State who can be made reputable has been brought under Medical Society influence.

SEC. 7. It shall encourage post-graduate work in medical centers, as well as home study and research, and shall endeavor to have the results of the same utilized and intelligently discussed in the county societies. (With these ends in view, five years after the adoption of these By-laws, except by unanimous consent of the Committee on Scientific Work, no voluntary paper shall be placed upon the annual program, or be heard in the Association, which has not first been read in the county society of which the author is a member.)

SEC. 8. It shall elect representatives to the House of Delegates of the American Medical Association in accordance with the Constitution and By-laws of that body, in such a manner that not more than one-half of the delegates shall be elected in any one year.

SEC. 9. It shall, upon application, provide and issue charters to county societies organized to conform to the spirit of this Constitution and By-laws.

SEC. 10. In sparsely settled sections, it shall have authority to organize the physicians of two or more counties into societies, to be designated by hyphenating the names of two or more counties, so as to distinguish them from district and other classes of societies, and these societies, when organized and chartered, shall be entitled to all the privileges and representation provided herein for county societies, until such counties may be organized separately.

SEC. 11. It may divide the counties of the State into ten Councilor districts, and, when the best interest of the Society and profession will be promoted thereby, organize in each district medical society, to meet midway between the annual sessions of this Society, and members of the chartered county societies, and none others, shall be members in such district societies. (When so organized from the presidents of such district societies shall be chosen the Vice-Presidents of this Society, and the presidents of the county societies of the district shall be the vice-presidents of such district societies.)

SEC. 12. It shall have authority to appoint committees for special purposes from among members of the Society who are not members of the House of Delegates, and such committees may report to the House of Delegates in person, and may participate in the debate thereon.

SEC. 13. It shall approve all memorials and resolutions issued in the name of the Society before the same shall become effective.

SEC. 14. It shall present a summary of its proceedings to the last general meeting of each annual session, and shall publish the same in the transactions.

CHAPTER V.—ELECTION OF OFFICERS.

SECTION 1. All elections shall be by secret ballot, and a majority of the votes cast shall be necessary to elect: *Provided*, that when only one name is to be balloted for, *the Society* may suspend the rules and declare the same elected by consent.

SEC. 2. The House of Delegates, on the first day of the annual sessions, shall select a Committee on Nominations, consisting of ten delegates, no two of whom shall be from the same council or district. It shall be the duty of this committee to consult with the members of the Society, and to hold one or more meetings, at which the best interests of the Society and of the pro-

fession of the State for the ensuing year shall be carefully considered. The committee shall report the result of its deliberations to the House of Delegates in the shape of a ticket containing the name of one member for the office of President, and one member for each of the other offices to be filled at that annual session.

SEC. 3. The report of the Nominating Committee and the election of officers shall be the first order of business of the House of Delegates after the reading of the minutes *on the morning of the last day* of the general session.

SEC. 4. Nothing in this article shall be construed to prevent additional nominations being made by members of the House of Delegates.

SEC. 5. Any person known to have solicited votes for or sought any office within the gift of this Society, shall be ineligible for any office for two years.

CHAPTER VI.—DUTIES OF OFFICERS.

SECTION 1. The President shall preside at all meetings of the Society and of the House of Delegates; shall appoint all committees not otherwise provided for; shall deliver an annual address at such time as may be arranged; shall give a deciding vote in case of a tie, and shall perform such other duties as custom and parliamentary usage may require. He shall be the real head of the profession of the State during his term of office, and as far as practicable, shall visit by appointment the various sections of the State and assist the Councilors in building up the county societies, and in making their work more practical and useful.

SEC. 2. The Vice-Presidents shall assist the President in the discharge of his duties. In the event of his death, resignation or removal, the Council shall select one of the Vice-Presidents to succeed him.

SEC. 3. The Treasurer shall give bond for the trust reposed in him whenever the House of Delegates shall deem it requisite. He shall demand and receive all funds due the Society, together with the bequests and donations. He shall, under the direction of the House of Delegates, sell or lease any estate belonging to the Society, and execute the necessary papers; and shall, in general, subject to such direction, have the care and management of the fiscal affairs of the Society. He shall pay money out of the treasury only on a written order of the President, countersigned by the Secretary; he shall subject his accounts to such examination as the House of Delegates may order, and he shall annually render an account of his doings and of the state of the funds in his hands. He shall charge upon his books the assessments against each component county society at the end of the fiscal year; he shall collect and make proper credits for the same, and perform such other duties as may be assigned to him.

SEC. 4. The Secretary, acting with the Committee on Scientific Work, shall prepare and issue the programs for and attend all meetings of the Society, and of the House of Delegates, and he shall keep minutes of their respective proceedings in separate record books. He shall be custodian of all record books and papers belonging to the Society, except such as properly belong to the Treasurer, and shall keep account of and promptly turn over to the Treasurer all funds of the Society which come into his hands. He shall provide for the registration of the members and delegates at the annual sessions. He shall keep a card-index register of all the legal practitioners of

the State by counties, noting on each his status in relation to his county society. In so far as it is in his power, he shall use the printed matter, correspondence and influence of his office to aid the Councilors in the organization and improvement of the county societies, and in the extension of the power and usefulness of this Society. He shall conduct the official correspondence, notifying members of meetings, officers of their election, and committees of their appointment and duties. He shall act as Chairman of the Committees on Scientific Work and on publication. He shall employ such assistants as may be ordered by the Council or the House of Delegates. He shall annually make a report of his doings to the House of Delegates.

In order that the Secretary may be enabled to give that amount of time to his duties which will permit of his becoming proficient, it is desirable that he should receive some compensation. The amount of his salary shall be fixed by the House of Delegates.

CHAPTER VII.—Councilor Districts.

Section 1. To facilitate the more perfect organization of the medical profession, the State of North Carolina is hereby divided by counties into ten councilor districts, as follows:

First District.—Currituck, Camden, Pasquotank, Perquimans, Gates, Chowan, Washington, Tyrrell, Dare and Hyde.

Second District.—Hertford, Martin, Pitt, Bertie, Beaufort, Lenoir, Jones, Craven, Pamlico and Carteret.

Third District.—New Hanover, Pender, Onslow, Duplin, Bladen, Sampson, Columbus and Brunswick.

Fourth District.—Northampton, Halifax, Nash, Edgecombe, Johnston, Wilson, Wayne and Greene.

Fifth District.—Cumberland, Robeson, Scotland, Richmond, Montgomery, Moore, Harnett and Chatham.

Sixth District.—Wake, Franklin, Warren, Vance, Granville, Person, Caswell, Alamance, Orange and Durham.

Seventh District.—Anson, Union, Stanly, Mecklenburg, Cabarrus, Lincoln, Gaston, Cleveland and Rutherford.

Eighth District.—Rockingham, Guilford, Randolph, Forsyth, Stokes, Surry, Yadkin, Alleghany, Wilkes and Ashe.

Ninth District.—Davidson, Davie, Rowan, Iredell, Alexander, Catawba, Caldwell, Watauga, Mitchell and Burke.

Tenth District.—Buncombe, Yancey, McDowell, Madison, Polk, Henderson, Haywood, Transylvania, Jackson, Swain, Macon, Graham, Clay and Cherokee.

CHAPTER VIII.—Council.

Section 1. The Council shall hold daily meetings during the annual session of the Association and at such other times as necessity may require, subject to the call of the Chairman or on petition of three Councilors. It shall meet on the last day of the annual session of the Association for reorganization and for the outlining of work for the ensuing year. At this meeting it shall elect a Chairman and Secretary, and it shall keep a permanent record of its proceedings. It shall, through its Chairman, make an annual report to the House of Delegates at such time as may be provided.

SEC. 2. Each Councilor shall be organizer, peacemaker and censor for his district. He shall visit each county in his district at least once a year for the purpose of organizing component societies where none exist, for inquiring into the condition of the profession, and for improving and increasing the zeal of the county societies and their members. He shall make an annual report of his doings, and of the condition of the profession of each county in his district to each annual session of the House of Delegates. The necessary traveling expenses incurred by such Councilor in the line of the duties herein imposed may be allowed by the House of Delegates upon a proper itemized statement, but this shall not be construed to include his expense in attending the annual session of the Society.

SEC. 3. Collectively the Council shall be the Board of Censors of the Society. It shall consider all questions involving the rights and standing of members, whether in relation to other members, to the component societies, or to this Society. All questions of an ethical nature brought before the House of Delegates or the general meeting shall be referred to the Council without discussion. It shall hear and decide all questions of discipline affecting the conduct of members or of a county society, upon which an appeal is taken from the decision of an individual Councilor. Its decision in all such cases shall be final.

SEC. 4. The Council shall have the right to communicate the views of the profession and of the Society in regard to health, sanitation and other important matters to the public and the lay press. Such communications shall be officially signed by the Chairman and Secretary of the Council, as such.

CHAPTER IX.—COMMITTEES.

SECTION 1. The standing committees shall be as follows:

A Committee on Scientific Work.

A Committee on Public Policy and Legislation.

A Committee on Publication.

A Committee on Nominations.

A Committee on Finance.

A Committee on Obituaries.

A Committee on Arrangements, and such other committees as may be necessary. Such committees shall be elected by the House of Delegates, unless otherwise provided.

SEC. 2. The Committee on Scientific Work shall consist of three members, of which the Secretary shall be a member and Chairman, and shall determine the character and scope of the scientific proceedings of the Society for each session, subject to the instructions of the House of Delegates or of the Society, or to the provisions of the Constitution and By-laws. Thirty days previous to each annual session it shall prepare and issue a program announcing the order in which papers, discussions and other business shall be presented, which shall be adhered to by the Society as nearly as practicable.

SEC. 3. The Committee on Public Policy and Legislation shall consist of three members and the President and Secretary. Under the direction of the House of Delegates it shall represent the Society in securing and enforcing legislation in the interest of public health and of scientific medicine. It shall keep in touch with professional and public opinion, shall endeavor to shape

legislation so as to secure the best results for the whole people, and shall utilize every organized influence of the profession to promote the general influence in local, State and national affairs and elections. Its work shall be done with the dignity becoming a great profession, and with that wisdom which will make effective its power and influence. It shall have authority to be heard before the entire Society upon questions of great concern at such time as may be arranged during the annual session.

SEC. 4. The Committee on Publication shall consist of three members, of which the Secretary shall be one and Chairman, and shall have referred to it all reports on scientific subjects, and all scientific papers and discussions heard before the Society. It shall be empowered to curtail or abstract papers and discussions, and any paper referred to it which may not be suitable for publication in the Transactions, may be returned to the author. The committee shall have authority to arrange for the publication and distribution of the Transactions after receiving competitive bids, and shall use diligence in getting them into the hands of the members. All papers read before the Society shall be the property of the Society.

SEC. 5. The Committee on Nominations shall be appointed and perform its duties in accordance with the provisions of chapter 5, section 2, of these By-laws. They shall also nominate a Leader of Debate, a Committee on Scientific Work, a Committee on Public Policy and Legislation, a Committee on Publication, a Committee on Obituaries, a Committee on Finance, one member of the Committee of Arrangements, delegates to the American Medical Association, the Virginia Medical Society, the South Carolina Medical Association, and to such other bodies as the Society may determine. They shall also each third year nominate a board of ten Councilors.

SEC. 6. The Committee on Finance, to consist of three members, shall examine the accounts of the Treasurer and report to the Society, making suggestions as to the amount of assessments for the coming year, the remuneration of the Secretary and the Treasurer, and such other suggestions concerning the finances of the Society as they may think proper. The Committee on Obituaries to consist of three members, shall report to the general meeting of the Society the names of all members dying during the past year, with other data appropriate for memorial publication.

SEC. 7. The Committee of Arrangements shall consist of one member elected by the House of Delegates each year, and two members elected by the county society in the territory in which the annual session is to be held. It shall, by committees of its own selection, provide suitable accommodations for the meeting places of the Society and of the House of Delegates, the Board of Medical Examiners, and of their respective committees, and shall have general charge of all the arrangements. Its Chairman shall report an outline of the arrangements to the Secretary for publication in the program, and shall make additional announcements during the session as occasion may require.

CHAPTER X.—OF THE SECTIONS AND VOLUNTARY COMMUNICATIONS.

SECTION 1. The newly-installed President shall, at the last session of each meeting, appoint a member to serve as Chairman of each of the following sections, to wit: Anatomy and Surgery, Materia Medica and Therapeutics,

Practice of Medicine, Physiology and Chemistry, Obstetrics, Gynecology, Medical Jurisprudence and State Medicine, Pathology and Microscopy, and Railway Surgery.

SEC. 2. At any time after the meeting the Chairman of each section may appoint three such members as he may select as his assistants to work up such items as he may designate, confining himself to the general advancement in his section.

SEC. 3. The Chairmen of sections shall send in to the Secretary, not later than thirty days previous to each meeting of the Society, the titles of papers to be presented by themselves and their assistants, to be used by the Committee on Scientific Work in making a program for the meeting.

SEC. 4. No paper shall be read before the Society unless the author be present, unless his absence be due to some unavoidable circumstance. A paper presented by proxy may be referred to the Committee on Publication.

SEC. 5. No paper shall be referred to the Committee on Publication until it has been placed in the hands of the Secretary; and the Secretary shall not return any paper accepted by the Society without the consent of the Society, and then he shall take a receipt for the same.

SEC. 6. No paper shall be received by or read before this Society that has been presented to any other society, excepting only a component society of this Society, or that has been offered for publication in any journal; and in the case of any paper accepted the author is supposed to have invested with the Society all rights to its ownership.

SEC. 7. No paper shall be published in the Transactions of this Society unless approved by the Committee on Publication; and any paper rejected by said committee shall be returned to the author through the Secretary of the Society.

SEC. 8. It is to be understood that the Society is not to be considered as endorsing all the views and opinions advanced by the authors of papers published in the Transactions of the Society.

CHAPTER XI.—ASSESSMENTS AND EXPENDITURES.

SECTION 1. An assessment of two dollars per capita on the membership of the component societies is hereby made the annual dues of this Society, which amount shall be collected by the secretary of each county society, from each of its members, on or before the first day of March, and forwarded to the Treasurer of the State Society before the first day of April in each year. The secretary of each county society shall forward a statement of its assessment, together with its roster of all officers and members, list of delegates and list of nonaffiliated physicians of the county, to the Secretary of this Society on or before the first day of April in each year.

SEC. 2. Any county society which fails to pay its assessment, or make the reports required, on or before the date above stated, shall be held as suspended, and none of its members or delegates shall be permitted to participate in any of the business or proceedings of the State Society, or of the House of Delegates, or receive the volume of Transactions, until such requirements have been met.

SEC. 3. All motions or resolutions appropriating money shall specify a definite amount, or so much thereof as may be necessary for the purpose in-

dicated, and must be approved by the Council and House of Delegates on a call of the ayes and noes.

CHAPTER XII.—Rules of Conduct.

The principles set forth in the Declaration of Principles of Medical Ethics of the American Medical Association shall govern the conduct of members in their relations to each other and to the public.

CHAPTER XIII.—Rules of Order.

The deliberations of this Society shall be governed by parliamentary usage as contained in Roberts' Rules of Order, unless otherwise determined by a vote of its respective bodies.

CHAPTER XIV.—County Societies.

Section 1. All county societies now in affiliation with the State Society, or those that may hereafter be organized in this State, which have adopted principles of organization not in conflict with this Constitution and By-laws, shall, upon application to the House of Delegates, receive a charter from and become a component part of this Society.

Sec. 2. As rapidly as can be done after the adoption of this Constitution and By-laws, a medical society shall be organized in every county in the State in which no component society exists, and charters shall be issued thereto.

Sec. 3. Charters shall be issued only upon approval of the House of Delegates, and shall be signed by the President and Secretary of this Society. The House of Delegates shall have authority to revoke the charter of any component county society whose actions are in conflict with the letter or spirit of this Constitution and By-laws.

Sec. 4. Only one component medical society shall be chartered in any county. Where more than one county society exists, friendly overtures and concessions shall be made, with the aid of the Councilor for the district, if necessary, and all of the members brought into one organization. In case of failure to unite, an appeal may be made to the Council, which shall decide what action shall be taken.

Sec. 5. Each county society shall judge of the qualification of its own members, but, as such societies are the only portals to this Society and to the American Medical Association, every reputable and legally registered physician who is practicing, or who will agree to practice nonsectarian medicine, shall be entitled to membership. Before a charter is issued to any county society, full and ample notice and opportunity shall be given to every such physician in the county to become a member.

Sec. 6. Any physician who may feel aggrieved by the action of the society of his county in refusing him membership, or in suspending or expelling him, shall have the right of appeal to the Council, and to the House of Delegates.

Sec. 7. In hearing appeals the Council may admit oral or written evidence, as in its judgment will best and most fairly present the facts, but in case of every appeal, both as a board and as individual Councilors in district and county work, efforts at conciliation and compromise shall precede all such hearings.

SEC. 8. When a member in good standing in a component society moves to another county in this State, his name, upon request, shall be transferred without cost to the roster of the county society into whose jurisdiction he moves.

SEC. 9. A physician living on or near a county line may hold his membership in that county most convenient for him to attend, on permission of the society in whose jurisdiction he resides.

SEC. 10. Each county society shall have general direction of the affairs of the profession in the county, and its influence shall be constantly exerted for bettering the scientific, moral and material condition of every physician in the county; and systematic efforts shall be made by each member, and by the society as a whole, to increase the membership until it embraces every qualified physician in the county.

SEC. 11. Frequent meetings shall be encouraged, and the most attractive programs arranged that are possible. The younger members shall be especially encouraged to do post-graduate and original research work, and to give the society the first benefit of such labors. Official position and other preferments shall be unstintingly given to such members.

SEC. 12. At some meeting in advance of the annual session of this Society prior to the first day of April, each county society shall elect a delegate or delegates with alternates, to represent it in the House of Delegates of this Society in the proportion of one delegate to each twenty-five members or major fraction thereof, and the secretary of the society shall send a list of such delegates with alternates to the Secretary of this Society at least ten days before the annual sessions.

SEC. 13. The secretary of each county society shall keep a roster of its members, and a list of the nonaffiliated registered physicians of the county, in which shall be shown the full name, address, college, and date of graduation, date of license to practice in this State, and such other information as may be deemed necessary. He shall furnish an official report containing such information, upon blanks supplied him for the purpose, to the Secretary of this Society before the first day of April, in each year, and at the same time that the dues accruing from the annual assessment are sent in. In keeping such roster, the secretary shall note any changes in the personnel of the profession by death, or by removal to or from the county, and in making his annual report he shall be certain to account for every physician who has lived in the county during the year.

CHAPTER XV.—ORDER OF BUSINESS.

SECTION 1. General meetings.

The President, or, in his absence, one of the Vice-Presidents in the order of their rank, shall call the Society to order, or in the absence of all these officers, a presiding officer shall be chosen by a majority of the members present.

Address of Welcome. Response.

Any business requiring early attention may be introduced by permission and without discussion referred to the Council, the House of Delegates, or the appropriate committee.

The President's Address.

Reports of Committees.

Reports from the House of Delegates.

Reports from the Council.

Written communications upon medical subjects may be read and discussed. This shall include reports from sections as arranged each year by the program.

The Annual Debate.

Oral Communications and Clinical Reports read and discussed.

Final Reports from the Council.

Final Reports from the House of Delegates.

Final Reports from Committees.

Report to the General Meeting from the House of Delegates appointing the time and place of next session.

Report from the House of Delegates of the Election of Officers and Committees.

Appointment of Chairmen of Sections by President.

Adjournment.

SEC. 2. The House of Delegates.

The President, or, in his absence, one of the Vice-Presidents in the order of their rank, shall call the Society to order, or in the absence of all these officers a presiding officer shall be chosen by a majority of the members present.

Roll-call. By counties.

The President's Message.

Report of Committee on Credentials.

Reports of Committees.

Reports of Officers.

Reports of the Council.

Communications from the General Meeting of the Society.

Reports from the County Societies.

Appointment of Committee on Nominations.

New Business.

General Discussion of Measures for the Advancement of the Profession.

Reports of Committees.

Election of Officers and Committees.

Selection of Place and Time of Next Meeting.

Unfinished Business.

Adjournment.

(While there may at times appropriately be a variation from the details of the above outline of business procedure, it is the intention of these By-laws to so arrange that the work other than the purely scientific part of the Society's proceedings be done in the Council and House of Delegates, and the general meetings of the Society be devoted exclusively to scientific work.)

CHAPTER XVI.—AMENDMENTS.

These By-laws may be amended at any annual session by a majority vote of all the delegates present at that session, after the amendment has lain upon the table for one day.

REPORT OF THE COMMITTEE ON MEDICAL ETHICS

(Extract from the proceedings of the American Medical Association at the annual session in New Orleans, May, 1903.)

Dr. E. Eliot Harris, New York, read the following report:

To the President and Members of the House of Delegates of the American Medical Association:

Your enlarged Committee on Medical Ethics, consisting of the Special Committee and one delegate from each State, have unanimously adopted the following report, entitled the "Principles of Medical Ethics of the American Medical Association," which is herewith submitted.

The following report of the Special Committee shall be printed as an explanatory preface to the Principles of Medical Ethics of the American Medical Association:

Gentlemen:—Your committee has given extended and careful thought to the proposed revision of the Code of Medical Ethics referred to it for consideration. As you will note on reference to the caption of the report, the word "Code" has been eliminated, and the expression "Principles of Medical Ethics of the American Medical Association" adopted as adequately descriptive. In reference to this change, it is proper to say that such action on its part is based on the idea that the American Medical Association may be conceived to occupy some such relation to the constituent State associations as the United States, through its Constitution, holds to the several States. The committee, for this reason, regards it as wiser to formulate the principles of medical ethics without definite reference to "Code" or penalties, thus leaving the respective States to form such Code, and establish such rules as they may regard to be fitting and proper, for regulating the professional conduct of their members, provided, of course, that in doing so there shall be no infringement on the established ethical principles of this Association. The committee regard as wise and well intended to facilitate the business of the parent organization, and promote its harmony, this course which leaves to the State Association large discretionary powers concerning membership and other admittedly State affairs. Your committee has retained, to a large extent, the phraseology of the existing Code, while aiming at condensation of expression and a better understanding of some of its statements. The report of the committee has been reached unanimously, without dissension or distrust on the part of its members, each aiming to formulate a result based on principle alone, and without regard to any past or present disagreements or misunderstandings whatsoever; such being the case, the committee invites your candid and unprejudiced attention to the results of its labor, feeling that at least some good has been accomplished.

Respectfully submitted,

E. Eliot Harris, *Chairman.*
William H. Welch.
T. J. Happel.
Joseph D. Bryant.

The report of the committee was unanimously adopted.

CHAPTER XII.—Rules of Conduct.

"The principles set forth in the Declaration of Principles of Medical Ethics of the American Medical Association shall govern the conduct of members in their relations to each other and to the public."—Constitution and By-laws Medical Society of the State of North Carolina, adopted at Hot Springs, N. C., June 2, 1903.

PRINCIPLES OF MEDICAL ETHICS

(Adopted at the annual session in New Orleans, May, 1903.)

The American Medical Association promulgates as a suggestive and advisory document, the following:

CHAPTER I.—The Duties of Physicians to Their Patients.

Section 1. Physicians should not only be ever ready to obey the calls of the sick and the injured, but should be mindful of the high character of their mission and of the responsibilities they must incur in the discharge of momentous duties. In their ministrations they should never forget that the comfort, the health, and the lives of those entrusted to their care, depend on skill, attention and fidelity. In deportment they should unite tenderness, cheerfulness and firmness, and thus inspire all sufferers with gratitude, respect and confidence. These observances are the more sacred because, generally, the only tribunal to adjudge penalties for unkindness, carelessness or neglect is their own conscience.

Sec. 2. Every patient committed to the charge of a physician should be treated with attention and humanity, and reasonable indulgence should be granted to the caprices of the sick. Secrecy and delicacy should be strictly observed; and the familiar and confidential intercourse to which physicians are admitted, in their professional visits, should be guarded with the most scrupulous fidelity and honor.

Sec. 3. The obligation of secrecy extends beyond the period of professional services; none of the privacies of individual or domestic life, no infirmity of disposition, or flaw of character observed during medical attendance should ever be divulged by physicians, except when imperatively required by the laws of the State. The force of the obligation of secrecy is so great that physicians have been protected in its observance by courts of justice.

Sec. 4. Frequent visits to the sick are often requisite, since they enable the physician to arrive at a more perfect knowledge of the disease, and to meet promptly every change which may occur. Unnecessary visits are to be avoided, as they give undue anxiety to the patient; but to secure the patient against irritating suspense and disappointment the regular and periodical visits of the physician should be made as nearly as possible at the hour when they may be reasonably expected by the patient.

SEC. 5. Ordinarily, the physician should not be forward to make gloomy prognostications, but should not fail, on proper occasions, to give timely notice of dangerous manifestations to the friends of the patient, and even to the patient, if absolutely necessary. This notice, however, is at times so peculiarly alarming when given by the physician that its deliverance may often be preferably assigned to another person of good judgment.

SEC. 6. The physician should be a minister of hope and comfort to the sick, since life may be lengthened or shortened not only by the acts but by the words or manner of the physician, whose solemn duty is to avoid all utterances and actions having a tendency to discourage and depress the patient.

SEC. 7. The medical attendant ought not to abandon a patient because deemed incurable, for continued attention may be highly useful to the sufferer and comforting to the relatives, even in the last period of the fatal malady, by alleviating pain and by soothing mental anguish.

SEC. 8. The opportunity which a physician has of promoting and strengthening the good resolutions of patients suffering under the consequences of evil conduct ought never to be neglected. Good counsels, or even remonstrances, will give satisfaction, not offense, if they be tactfully proffered and evince a genuine love of virtue, accompanied by a sincere interest in the welfare of the person to whom they are addressed.

CHAPTER II.—THE DUTIES OF PHYSICIANS TO EACH OTHER AND TO THE PROFESSION AT LARGE.

ARTICLE I.—DUTIES FOR THE SUPPORT OF PROFESSIONAL CHARACTER.

SECTION 1. Every one, on entering the profession, and thereby becoming entitled to full professional fellowship, incurs an obligation to uphold its dignity and honor, to exalt its standing, and to extend the bounds of its usefulness. It is inconsistent with the principles of medical science, and it is incompatible with honorable standing in the profession for physicians to designate their practice as based on an exclusive dogma, or a sectarian system of medicine.

SEC. 2. The physician should observe strictly such laws as are instituted for the government of the members of the profession; should honor the fraternity as a body; should endeavor to promote the science and art of medicine, and should entertain a due respect for those seniors who, by their labors, have contributed to its advancement.

SEC. 3. Every physician should identify himself with the organized body of his profession as represented in the community in which he resides. The organization of local or county medical societies where they do not exist, should be effected, so far as practicable. Such county societies, constituting as they do, the chief elements of strength in the organization of the profession, should have the active support of their members, and should be made instruments for the cultivation of fellowship, for the exchange of professional experience, for the advancement of medical knowledge, for the maintenance of ethical standards, and for the promotion in general of the interests of the profession and the welfare of the public.

SEC. 4. All county medical societies thus organized ought to place themselves in affiliation with their respective State associations, and these, in turn, with the American Medical Association.

SEC. 5. There is no profession from the members of which greater purity of character and a higher standard of moral excellence are required than the medical; and to attain such eminence is a duty every physician owes alike to the profession and to patients. It is due to the patients, as without it their respect and confidence cannot be commanded, and to the profession because no scientific attainments can compensate for the want of correct moral principles.

SEC. 6. It is incumbent on physicians to be temperate in all things, for the practice of medicine requires the unremitting exercise of a clear and vigorous understanding; and in emergencies—for which no physician should be unprepared—a steady hand, an acute eye, and an unclouded mind are essential to the welfare and even to the life of a human being.

SEC. 7. It is incompatible with honorable standing in the profession to resort to public advertisements or private cards, inviting the attention of persons affected with particular diseases; to promise radical cures; to publish cases of operations in the daily prints, or to suffer such publications to be made; to invite laymen (other than relatives who may desire to be at hand) to be present at operations; to boast of cures and remedies; to adduce certificates of skill and success, or to employ any of the other methods of charlatans.

SEC. 8. It is equally derogatory to professional character for physicians to hold patients for any surgical instruments or medicines; to accept rebates on prescriptions or surgical appliances; to assist unqualified persons to evade the legal restrictions governing the practice of medicine; or to dispense, or promote the use of secret medicines, for if such nostrums are of real efficacy, any concealment regarding them is inconsistent with benevolence and professional liberality, and if mystery alone give them public notoriety, such craft implies either disgraceful ignorance or fraudulent avarice. It is highly reprehensible for physicians to give certificates attesting the efficacy of secret medicines or other substances used therapeutically.

ARTICLE II.—PROFESSIONAL SERVICES OF PHYSICIANS TO EACH OTHER.

SECTION 1. Physicians should not, as a general rule, undertake the treatment of themselves, nor of members of their family. In such circumstances, they are peculiarly dependent on each other; therefore kind offices and professional aid should always be cheerfully and gratuitously afforded. These visits ought not, however, to be obtrusively made, as they may give rise to embarrassment or interfere with that free choice on which such confidence depends.

SEC. 2. All practicing physicians and their immediate family dependents are entitled to the gratuitous services of any one or more of the physicians residing near them.

SEC. 3. When a physician is summoned from a distance to the bedside of a colleague in easy financial circumstances, a compensation, proportionate to traveling expenses and to the pecuniary loss entailed by absence from the accustomed field of professional labor, should be made by the patient or relatives.

SEC. 4. When more than one physician is attending another, one of the number should take charge of the case, otherwise the concert of thought and action so essential to wise treatment cannot be assured.

SEC. 5. The affairs of life, the pursuit of health and the various accidents and contingencies to which a physician is peculiarly exposed, sometimes require the temporary withdrawal of this physician from daily professional labor, and the appointment of a colleague to act for a specified time. The colleague's compliance is an act of courtesy which should always be performed with the utmost consideration for the interest and character of the family physician.

ARTICLE III.—THE DUTIES OF PHYSICIANS IN REGARD TO CONSULTATIONS.

SECTION 1. The broadest dictates of humanity should be obeyed by physicians whenever and wherever their services are needed to meet the emergencies of disease or accident.

SEC. 2. Consultations should be promoted in difficult cases, as they contribute to confidence and more enlarged views of practice.

SEC. 3. The utmost punctuality should be observed in the visits of physicians when they are to hold consultations, and this is generally practicable, for society has been so considerate as to allow the plea of a professional engagement to take precedence over all others.

SEC. 4. As professional engagements may sometimes cause delay in attendance, the physician who first arrives should wait for a reasonable time, after which the consultation should be considered as postponed to a new appointment.

SEC. 5. In consultations no insincerity, rivalry, or envy should be indulged in; candor, probity, and all due respect should be observed toward the physician in charge of the case.

SEC. 6. No statement or discussion of the case should take place before the patient or friends, except in the presence of all the physicians attending, or by their common consent; and no opinions or prognostications should be delivered which were not the result of previous deliberation and concurrence.

SEC. 7. No decision should restrain the attending physician from making such consequent variations in the mode of treatment as any unexpected change in the character of the case may demand. But at the next consultation reasons for the variations should be stated. The same privilege, with its obligations, belongs to the consultant when sent for in an emergency during the absence of the family physician.

SEC. 8. The attending physician at any time may prescribe for the patient; not so the consultant, when alone, except in a case of emergency or when called from a considerable distance. In the first instance the consultant should do what is needed, and in the second, should do no more than make an examination of the patient, and leave a written opinion, under seal, to be delivered to the attending physician.

SEC. 9. All discussions in consultation should be held as confidential. Neither by words nor by manner should any of the participants in a consultation assert, or intimate, that any part of the treatment pursued did not receive his assent.

SEC. 10. It may happen that two physicians cannot agree in their views of the nature of a case and of the treatment to be pursued. In the event of such disagreement a third physician should, if practicable, be called in. None but the rarest and most exceptional circumstances would justify the

consultant in taking charge of the case. He should not do so merely on the solicitation of the patient or friends.

SEC. 11. A physician who is called in consultation should observe the most honorable and scrupulous regard for the character and standing of the attending physician, whose conduct of the case should be justified, as far as can be, consistently with the conscientious regard for truth, and no hint or insinuation should be thrown out which could impair the confidence reposed in the attending physician.

ARTICLE IV.—DUTIES OF PHYSICIANS IN CASES OF INTERFERENCE.

SECTION 1. Medicine being a liberal profession, those admitted to its ranks should found their expectations of practice especially on the character and extent of their medical education.

SEC. 2. The physician, in his intercourse with a patient under the care of another physician, should observe the strictest caution and reserve; should give no disingenuous hints relative to the nature and treatment of the patient's disorder, nor should the course of conduct of the physician, directly or indirectly, tend to diminish the trust reposed in the attending physician.

SEC. 3. The same circumspection should be observed when, from motives of business or friendship, a physician is prompted to visit a person who is under the direction of another physician. Indeed, such visits should be avoided, except under peculiar circumstances; and when they are made, no inquiries should be instituted relative to the nature of the disease, or the remedies employed, but the topics of conversation should be as foreign to the case as circumstances will admit.

SEC. 4. A physician ought not to take charge of, or prescribe for a patient who has recently been under the care of another physician, in the same illness, except in case of a sudden emergency, or in consultation with the physician previously in attendance, or when that physician has relinquished the case or has been dismissed in due form.

SEC. 5. The physician acting in conformity with the preceding section should not make damaging insinuations regarding the practice previously adopted, and, indeed, should justify it if consistent with truth and probity; for it often happens that patients become dissatisfied when they are not immediately relieved, and, as many diseases are naturally protracted, the seeming want of success, in the first stage of treatment, affords no evidence of a lack of professional knowledge and skill.

SEC. 6. When a physician is called to an urgent case, because the family attendant is not at hand, unless assistance in consultation is desired, the former should resign the care of the patient immediately on the arrival of the family physician.

SEC. 7. It often happens, in cases of sudden illness, and of accidents and injuries, owing to the alarm and anxiety of friends, that several physicians are simultaneously summoned. Under these circumstances, courtesy should assign the patient to the first who arrives, and who, if necessary, may invoke the aid of some of those present. In such a case, however, the acting physician should request that the family physician be called, and should withdraw unless requested to continue in attendance.

SEC. 8. Whenever a physician is called to the patient of another physician during the enforced absence of that physician, the case should be relinquished on the return of the latter.

SEC. 9. A physician while visiting a sick person in the country, may be asked to see another physician's patient because of a sudden aggravation of the disease. On such an occasion the immediate needs of the patient should be attended to and the case relinquished on the arrival of the attending physician.

SEC. 10. When a physician who has been engaged to attend an obstetric case is absent, and another is sent for, delivery being accomplished during the vicarious attendance, the acting physician is entitled to the professional fee, but must resign the patient on the arrival of the physician first engaged.

ARTICLE V.—DIFFERENCES BETWEEN PHYSICIANS.

SECTION 1. Diversity of opinion and opposition of interest may, in the medical as in other professions, sometimes occasion controversy and even contention. Whenever such unfortunate cases occur and cannot be immediately adjusted, they should be referred to the arbitration of a sufficient number of impartial physicians.

SEC. 2. A peculiar reserve must be maintained by physicians toward the public in regard to some professional questions, and as there exist many points in medical ethics and etiquette through which the feelings of physicians may be painfully assailed in their intercourse, and which cannot be understood or appreciated by general society, neither the subject-matter of their differences nor the adjudication of the arbitrators should be made public.

ARTICLE VI.—COMPENSATION.

SECTION 1. By the members of no profession are eleemosynary services more liberally dispensed than by the medical, but justice requires that some limits should be placed to their performance. Poverty, mutual professional obligations, and certain of the public duties named in sections 1 and 2 of chapter III, should always be recognized as presenting valid claims for gratuitous services; but neither institutions endowed by the public or by the rich, or by societies for mutual benefit, for life insurance, or for analogous purposes, nor any profession or occupation can be admitted to possess such privilege.

SEC. 2. It cannot be justly expected of physicians to furnish certificates of inability to serve on juries, or to perform militia duty; to testify to the state of health of persons wishing to insure their lives, obtain pensions, or the like, without due compensation. But to persons in indigent circumstances such services should always be cheerfully and freely accorded.

SEC. 3. Some general rules should be adopted by the physicians in every town or district relative to the minimum pecuniary acknowledgment from their patients; and it should be deemed a point of honor to adhere to these rules with as much uniformity as varying circumstances will admit.

SEC. 4. It is derogatory to professional character for physicians to pay or offer to pay commissions to any person whatsoever, who may recommend to them patients requiring general or special treatment or surgical opera-

tions. It is equally derogatory to professional character for physicians to solicit or to receive such commissions.

CHAPTER III.—The Duties of the Profession to the Public.

Section 1. As good citizens, it is the duty of physicians to be very vigilant for the welfare of the community, and to bear their part in sustaining its laws, institutions and burdens; especially should they be ready to coöperate with the proper authorities in the administration and the observance of sanitary laws and regulations, and they should also be ever ready to give counsel to the public in relation to subjects, especially appertaining to their profession, as on questions of sanitary police, public hygiene and legal medicine.

Sec. 2. It is the province of physicians to enlighten the public in regard to quarantine regulations; to the location, arrangement and dietaries of hospitals, asylums, schools, prisons and similar institutions; in regard to measures for the prevention of epidemic and contagious diseases; and when pestilence prevails, it is their duty to face the danger and to continue their labors for the alleviation of the suffering people, even at the risk of their own lives.

Sec. 3. Physicians, when called on by legally constituted authorities, should always be ready to enlighten inquests and courts of justice on subjects strictly medical, such as involve questions relating to sanity, legitimacy, murder by poison, or other violent means, and various other subjects embraced in the science of medical jurisprudence. It is but just, however, for them to expect due compensation for their services.

Sec. 4. It is the duty of physicians, who are frequent witnesses of the great wrongs committed by charlatans, and of the injury to health and even destruction of life caused by the use of their treatment, to enlighten the public on these subjects, and to make known the injuries sustained by the unwary from the devices and pretensions of artful impostors.

Sec. 5. It is the duty of physicians to recognize, and by legitimate patronage to promote, the profession of pharmacy, on the skill and proficiency of which depends the reliability of remedies, but any pharmacist who, although educated in his own profession, is not a qualified physician, and who assumes to prescribe for the sick, ought not to receive such countenance and support. Any druggist or pharmacist who dispenses deteriorated or sophisticated drugs, or who substitutes one remedy for another designated in a prescription, ought thereby to forfeit the recognition and influence of physicians.

CONSTITUTION AND BY-LAWS

FOR

COUNTY MEDICAL SOCIETIES

(Approved by the Medical Society of the State of North Carolina at the annual session at Hot Springs, N. C., June 2, 1903.)

INTRODUCTORY

The Committee on Organization of the American Medical Association, which was continued at the Saratoga meeting, herewith submits a tentative Constitution and By-laws for county societies, and in doing so desires to say that while the provisions it contains are deemed essential to good organization, some of the provisions are suggestive and educational in character and may not be applicable to every county or section. In such cases these may be omitted, or others more appropriate substituted for them. In any event, the high ideals for the individual physician, and the spirit of courtesy and kindness which should govern him in his dealings with his professional neighbors, are here set forth for thought and consideration.

The committee is not a unit as to whether there should be charged an admission fee as called for in section 1, chapter V, of the By-laws, but the majority of the committee believes that this is the correct principle, for the average individual does not appreciate that which he gets for nothing, and furthermore, that if an admission fee is charged the individual will not be as likely to drop out of the Society, as if he obtained his membership for nothing. The committee advises, however, that in organizing a county society, or before adopting the new constitution, that the charter shall be open for all in the county who are eligible and admit such charter members without the admission fee.

We close this report by making a quotation from our report when we submitted the Constitution and By-laws for State societies:

Much in the By-laws submitted may be regarded as "preaching," but it is inserted advisedly, with the sole object of arousing in the minds of each medical society member a desire for the accomplishment of greater ends than has been permitted by the customs and forms of the past. The committee earnestly desires that the State committees will continue the work of perfecting organization, actuated by that love for our profession that its ideals demand. With the medical profession well organized, medical science will more rapidly step to its appointed high place, and the profession which lives in its atmosphere will have that power and respect in the community that is its right.

J. N. McCormack, Bowling Green, Ky.,
P. Maxwell Foshay, Cleveland, Ohio,
George H. Simmons, Chicago, Illinois,
Committee.

CONSTITUTION

Article I.—Name and Title of the Society.

The name and title of this organization shall be the ..... County Medical Society.

Article II.—Purposes of the Society.

The purpose of this Society shall be to bring into one organization the physicians of ..... County; so that by frequent meetings and full and frank interchange of views they may secure such intelligent unity and harmony in every phase of their labor as will elevate and make effective the opinion of the profession in all scientific, legislative, public health, material and social affairs, to the end that the profession may receive that respect and support within its own ranks and from the community to which its honorable history and great achievements entitle it; and with other county societies to form the Medical Society of the State of North Carolina, and through it, with other State associations, to form and maintain the American Medical Association.

Article III.—Eligibility.

Every legally registered physician residing and practicing in ..... County, who is of good moral and professional standing, and who does not practice or claim to practice sectarian medicine, shall be eligible for membership.

Article IV.—Meetings.

Regular meetings shall be held at such time and place as may be determined by the society. Special meetings may be called by the President on a written request of five members. Calls for special meetings shall state the object of such meeting, and no business except that stated in the call shall be transacted at such meeting.

Article V.—Officers.

The officers of this Society shall consist of a President, Vice-President, Secretary, Treasurer, Delegates, and Board of (three) Censors. These officers, except the Delegates and Board of Censors, shall be elected annually for a term of one year. Delegates shall be elected for two years, or in accordance with the Constitution and By-laws of the State Association. One member of the Board of Censors shall be elected each year to serve for three years: *Provided*, that at the first election after the adoption of this Constitution one member of the board shall be elected for one, one for two, and one for three years.

Article VI.—Funds and Expenses.

Funds for meeting the expenses of the Society shall be raised by admission fee, annual dues, special assessments, and voluntary contribution. Funds may be appropriated by vote of the Society for such purposes as will promote its welfare and that of the profession.

Article VII.—Charter.

The Society shall apply to the State Society for a charter at the meeting at which this Constitution and By-laws are adopted, or as soon thereafter as practicable, and the charter shall be kept in the custody of the Secretary.

Article VIII.—Incorporation.

The Society shall have authority to appoint a Board of Trustees and to provide for articles of incorporation whenever it may deem the same necessary.

Article IX.—Amendments.

The Society may amend any article of this Constitution by a two-thirds vote of its members at any regular meeting, provided that such amendment shall have been read in open session at a previous regular meeting and shall have been sent by mail to each member ten days in advance of the meeting at which final action is to be taken.

BY-LAWS

Chapter I.—Membership.

Section 1. The Society shall judge of the qualification of its members, but as it is the only door to the State Medical Society and to the American Medical Association for physicians within its jurisdiction, every reputable and legally qualified physician in ..... County, who does not practice or claim to practice sectarian medicine, shall be entitled to membership.

Sec. 2. A candidate for membership shall make application in writing, and shall state his age, his college, and date of graduation, the place in which he has practiced, and the date of registration in this State. The application must be accompanied by the admission fee, and must be endorsed by two members of this Society. It shall be referred to the Board of Censors, who shall inquire into the standing of the applicant, assure themselves that he or she is duly registered according to the laws of the State, and report at the next regular meeting of this Society. Election shall be by ballot, and two-thirds of the votes of the members present and voting shall be necessary to elect. The application shall be returned to the Secretary, who shall file it for future reference. Applications for membership from rejected candidates shall not be received within six months of such rejection.

Sec. 3. A physician accompanying his application with a transfer card from another component county society of this or any State within sixty days of the issuance of said card, may be admitted without fee on a majority vote of the members present, and without the application being referred to the Board of Censors. Such applications may be acted on at the meeting at which they are presented on the vote of three-fourths of the members present, otherwise they shall lie over until the next regular meeting. No annual dues for the current year shall be charged against such members, provided the same have been paid to the society from which the applicant comes.

Sec. 4. A physician residing in an immediately adjoining county may become a member of this Society in like manner and on the same terms as a physician living in this county, on permission of the county society of the county in which the applicant lives, if there be one, or of the State Councilor for this jurisdiction.

Sec. 5. A member in good standing who is free from all indebtedness to this Society, and against whom no charges are pending, wishing to withdraw, shall be granted a transfer card. This card shall state the date the member associated himself with this Society, the date of issuance of the card, and shall be signed by the President and Secretary. It shall be accompanied with a copy of the application presented at the time the member joined the Society, for information to the society to which the member desires to attach himself.

Sec. 6. All members shall be equally privileged to attend all meetings and take part in all proceedings, and shall be eligible to any office or honor within the gift of the Society, so long as they conform to this Constitution and By-laws, including the payment of the dues to this Society and to the State Association: *Provided*, that no member under sentence of expulsion shall take part in any of the proceedings, or be eligible to any office until relieved of such disability. *And provided further*, that none of the privileges of membership shall be extended to any person not a member of this Society, except on a majority vote of the Society in regular meeting.

Sec. 7. A member who is guilty of a criminal offense or of gross misconduct, either as a physician or as a citizen, or who violates any of the provisions of this Constitution and By-laws, shall be liable to censure, suspension or expulsion. Charges against a member must be made in writing and be delivered to the Secretary, who shall immediately furnish a copy to the accused and to the Chairman of the Board of Censors. The Board of Censors shall investigate the charges on their merits, but no action shall be taken by the Board before giving the accused and accusers ample opportunity to be heard. Nor shall any action be taken by the board within ten days of the presentation of the charges to the accused. The board shall report (1) that the charges are not sustained; or (2) that the charges are sustained, and that the accused be (*a*) censured; (*b*) suspended for a definite time, or (*c*) expelled. Censure or suspension shall require a two-thirds vote of the members present and voting, and a three-fourths vote of those present and voting shall be required to expel a member. No action shall be taken by the Society in such cases until at least six weeks have elapsed since the filing of the charges. A member suspended for a definite time shall be reinstated at the expiration of the time, without action on his part or on the part of the Society.

Sec. 8. Kindly efforts in the interest of peace, conciliation or reformation, so far as possible and expedient, shall precede the filing of formal charges affecting the character or standing of a member, and the accused shall have opportunity to be heard in his own defense in all trials and proceedings of this nature.

Sec. 9. Members expelled from this Society for any cause shall be eligible for membership after one year from date of expulsion, and on the same terms and in like manner as original applicants.

Chapter II.—Powers and Duties.

Section 1. This Society shall have general direction of the affairs of the medical profession of the county, and its influence shall be constantly exerted to better the scientific, material and social condition of every physician within its jurisdiction. Systematic efforts shall be made by each member, and by the Society as a whole, to increase the membership until it embraces every reputable physician in the county.

Sec. 2. A meeting shall be held at ..... p. m. on the ..... in each month (or oftener); ..... members shall constitute a quorum. The officers and committee on program shall profit by experience and by the example of other similar societies, and strive to arrange for the most attractive and successful proceedings for each meeting. Younger members especially shall be encouraged to do post-graduate and original research work, and to give this Society the first results of such labors. Crisp papers and discussions and reports of cases shall be arranged for and encouraged, and tedious and profitless proceedings and discussions shall be avoided as far as practicable.

Sec. 3. One meeting during each year may be set apart for a discussion of the business affairs of the profession of the county, with the view of adopting the best methods for the guidance of all. In all proper ways the public shall be taught that business methods and prompt collections are essential to the equipment of the modern physician and surgeon, and that it suffers even more than the profession when this is not recognized.

Sec. 5. The Society shall endeavor to educate its members to the belief that the physician should be a leader in his community, in character, in learning, in dignified and manly bearing, and in courteous and open treatment of his brother physicians, to the end that the profession may occupy that place in its own and the public estimation to which it is entitled.

Chapter III.—Officers.

Section 1. The officers of the Society shall be elected at the (December) meeting in each year, which shall be known as the annual meeting. Nominations shall be made by informal ballot, and all elections shall be by ballot. The vote of a majority of all the members present shall be necessary to an election.

Sec. 2. The President shall preside at all meetings of the Society, and perform such other duties as custom and parliamentary usage may require. He shall be the real head of the profession in the county during the year, and it shall be his pride and ambition to leave it in better condition as regards both scientific attainments and harmony than at the beginning of his term of office.

Sec. 3. The Vice-President shall assist the President in the performance of his duties, shall preside in his absence, and, on his death, resignation or removal from the county, shall succeed to the presidency.

Sec. 4. The Secretary shall record the minutes of the meetings and receive and care for all records and papers belonging to the Society, including its charter. He shall keep account of and promptly turn over to the Treasurer all funds of the Society which may come into his hands. He shall make and keep a correct list of the members of this Society in good standing, noting of each his correct name, address, place and date of graduation, and

the date of the certificate entitling him to practice medicine; and in a separate list he shall note the same facts in regard to each legally qualified physician in this county not a member of this Society. It shall be his duty to send a copy of such lists, on blank forms furnished him for that purpose, to the Secretary of the State Association, at such time as may be designated by the State Association. In making such lists he shall endeavor to account for each physician who has moved into or out of the county during the year, stating, when possible, both his present and past address. At the same time, and with his report of such lists of members and physicians, he shall transmit to the State Association his order on the Treasurer for the annual dues of the Society.

Sec. 5. The Treasurer shall receive all dues and moneys belonging to the Society from the hands of the Secretary or members, and shall pay out the same only on the written order of the Secretary.

Sec. 6. The delegates shall attend and faithfully represent the members of this Society and the profession of this county in the House of Delegates of the State Society, and shall make a report of the proceedings of that body to this Society at the earliest opportunity.

Chapter IV.—Committees.

Section 1. There shall be a Board of Censors as provided in the Constitution, a standing Committee on Programs and Scientific Work, a Committee on Public Health and Legislation, and such special committees as may from time to time be deemed necessary.

Sec. 2. *Board of Censors.*—This Board, consisting of three members, one elected annually, shall examine and report on the qualification of applicants for membership, subjecting each applicant to such examination as it may deem necessary. It shall investigate charges preferred against a member, and report its conclusions and recommendations to the Society. In case of the absence of a member of the board, the President may appoint some member to fill the vacancy. The senior member of the board in point of service shall be chairman of the board.

Sec. 3. *Committee on Program and Scientific Work.*—This committee shall consist of the President, Vice-President and Secretary. It shall be its duty to promote the scientific and social functions of the Society by arranging attractive programs for each meeting, and by urging each member to take part in the scientific work. It shall stimulate fraternalism and good feeling among the members in every way possible.

Sec. 4. *Committee on Public Health and Legislation.*—This Committee shall consist of three members, who shall be appointed annually by the President. It shall be its duty to enforce and support the sanitary and medical laws of the State in this county, to coöperate with the legislative committee of the State Association in all matters pertaining to legislation, and to prosecute quacks and medical pretenders in this county.

Chapter V.—Funds and Expenses.

Section 1. The admission fee, which must accompany the application, shall be $5.00, and shall include the annual dues for the fiscal year provided that when more than one-half of the fiscal year has elapsed at the time of

election of a member, one-half of the annual dues shall be remitted, making the admission fee in such cases $4.00. The admission fee shall be returned if the applicant is not accepted.

SEC. 2. The annual dues shall be $2.00, and shall be payable on January 1 of each year. Any member who shall fail to pay his annual dues by April 1 shall be held as suspended without action on the part of the Society. A member suspended for nonpayment of dues shall be restored to full membership on payment of all indebtedness. Members more than one year in arrears shall be dropped from the roll of members.

SEC. 3. The fiscal year of this Society shall be from January to December, inclusive.

CHAPTER VI.—ORDER OF BUSINESS.

The order of business shall be as follows:

1. Call to order by the President.
2. Reading of minutes of last meeting.
3. Clinical cases.
4. Papers and discussions.
5. Unfinished business.
6. Miscellaneous business.
7. Announcements.
8. Adjournment.

CHAPTER VII.—RULES OF ORDER.

The deliberations of this Society shall be governed by parliamentary usage as contained in Roberts' Rules of Order, unless otherwise determined by vote.

CHAPTER VIII.—PRINCIPLES OF ETHICS.

The Principles of Ethics of the American Medical Association and of the Medical Society of the State of North Carolina shall be the Code of this Society.

CHAPTER IX.—AMENDMENTS.

These By-laws may be amended at any regular meeting by a two-thirds vote therefor, provided that such amendment has been read in open session at the preceding regular meeting, and a copy of the same has been sent to each member by the Secretary ten days in advance of the meeting at which final action is to be taken.